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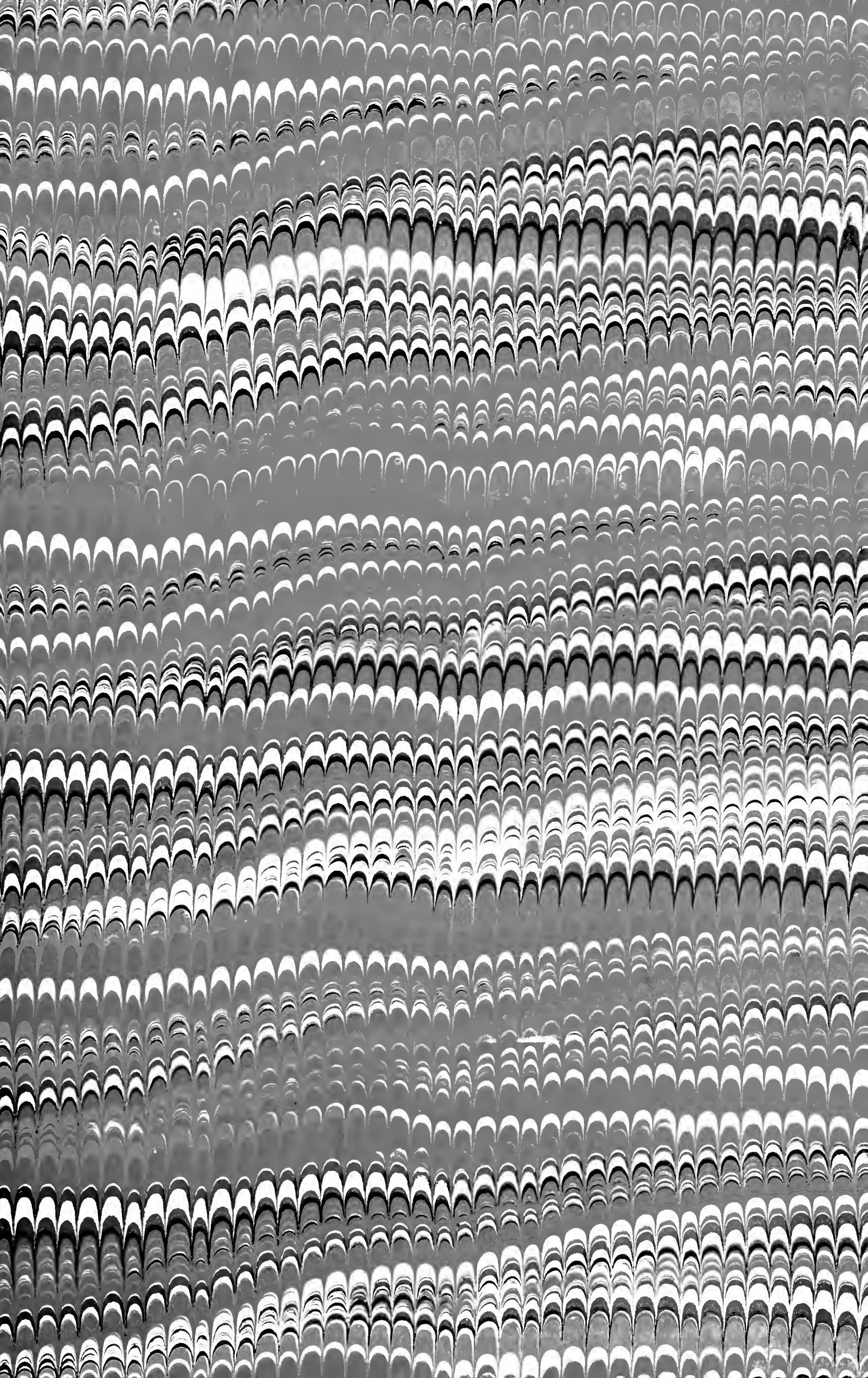
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AMERICAN VETERINARY REVIEW.

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AND OTHER VETERINARIANS.

VOLUME VI.

INDEX TO VOL. VI.

A bnormal Dentition, Necrosis.....	390
A Breeding Mare Mule.....	90
Academy Honor.....	142
A Case of Distokia in a Mare.....	395
A Case of Lupus Exedens.....	500
A Case of Maternal and Foetal Distokia.....	66
A Close Call.....	200
Actinomykosis; A New Infectious Disease of Animals and Mankind.....	521
Action for Damages.....	314
Action of Oxygenated Water upon Organic Matters and Fermentation.....	235
Acute Articular Rheumatism.....	432
Agersborg, G. S.....	114, 243, 247, 353
A Goat Farm.....	511
A Good Suggestion for a Good Purpose	364
A Just Decision.....	292
Aid to Agriculture.....	367
Aid to Scientific Research.....	366
Alarming Mortality.....	258
American Pork.....	572
American Veterinary College—Commencement Exercises.....	29, 556
American Veterinary College Hospital Records.....	31, 121
Amyl Nitrite	261
An Aged Soliped.....	120
Anatomical Technology as Applied to the Domestic Cat.....	504
Ancient Surgery.....	197
A New Horse Food.....	199
A New Vesicant.....	200
Another Resuscitation and Removal	318
Angina Anthracis in the Hog.....	114
Anthrax in Natal.....	208, 265
Anthrax in the West.....	243
Animal Plagues.....	410
Antipyretic Effects of Quinine: Its use in Pneumonia.....	510, 567
Annual Meeting.....	258
A New Vegetable Styptic.....	460

An Interesting Case of Latent Glanders.....	68
A Prolific Ewe.....	142
Appreciation.....	196
Appropriation Recommended.....	572
Arloing, M. M.....	231, 393
Army Veterinary Resignations.....	385
A Rumor.....	197
Army Veterinary Matters.....	419
Assimilation in Stomach of Dog..	248
Assistant Wanted.....	39
A Suggestion	261
A Strange Disease.....	262
A Step Forward.....	318
A Three-Legged Colt.....	574
A Valuable Collection	198
A Very Large Horse.....	198
Azoturia.....	454

B ack Numbers.....	27
Baldy, M.....	236
Balzer, M.....	174
Barrier, A.....	68
Billings, F. S.....	11; 54, 110, 226, 282
Blanchard, L.....	66
Bonnigal, M.....	69
Bort, M. P.....	235
Bovine Medicine and Surgery.....	364
Bryden, W. C.....	351, 352
Bunker, M.....	34

C anceroid of the Ear.....	250
Carcinoma of the Bladder.....	541
Cartilaginous Quittor.....	299
Cartilaginous Quittor—Operation—Rapid Recovery.....	449
Case Department.....	114
Case from Note Book.....	47
Cattanach, J. S.....	435
Cattle Census.....	91
Cattle Commission.....	90
Cattle Diseases in Canada.....	259
Cattle Shippers to be Heard.....	263
Cattle Quarantine.....	317, 366, 460
Cellulitic Fever—Pink Eye.....	187
Centralization in Veterinary Medicine.....	173
Cerebro-Spinal Meningitis.....	345, 352, 468, 511, 539, 545
Cestode Tuberculosis: Producing in Calf.....	6

Cestode Tuberculosis in Calf.....	26
Chicken Cholera.....	420
Chloride of Sodium Injections in Ventral Hernia.....	397
Clement, W. A.....	6
Clinical Chronicles.....	387, 447, 495, 538
Colin, M.....	67
College Commencement.....	81, 129
Commencement Exercises, A. V. C.....	29, 556
Comminutive Fracture of Thirteenth Dorsal Vertebrae.....	388
Comparative Pathology.....	63
Contagious Ophthalmia in Cattle.....	442
Contribution to the Symptomatology of Rupture of Diaphragm.....	47
Cornevin, M.....	231, 393
Correction.....	40, 197, 494
Correspondence.....	38, 85, 125, 183, 250, 364, 413, 507, 567
Crowley, C. W.....	349
Curious Growth.....	572
Cutting, W.....	299

D eath from Anthrax.....	258
Death of M. Davaine.....	460
Denslow, T. S.....	390, 449
Development of Fat in Animal Body.....	247
Derr, W. F.....	350, 432
Detecting Bacillus Tuberculosis for Diagnostic Purposes.....	451
Diagnosing Pericarditis in Bovines.....	59
Diphtheria in Calves, Communicated to Pigs.....	144
Diseases of Fowls.....	90
Dislocation of Os Calcis.....	353
Distoma Hepaticum Infesting Lungs of Cattle.....	100
Double Pneumonia in a Sea Lion.....	441
Dr. Stein a Regular Graduate.....	88

E ditorial.....	25, 59, 173, 236, 288, 385, 444, 492
Effects of Cold upon the Vitality of Trichinae.....	452
Enlargement of the Spleen.....	357
Enormous Development of Capsules of Kidney of Steer.....	119
Enormous Hematoma.....	180
Epizootic Cellulitis.....	38
Etiology of Tuberculosis.....	392
Exchanges, etc., received.....	40, 92, 145, 202, 363, 319, 369, 421, 462, 512, 574
Experimental Pathology.....	231, 392
Extract from Report of C. P. Lyman.....	570
Extracts from a Daily Journal.....	436, 485, 517
Extracts from Foreign Journals.....	27, 66, 177, 247, 451
Extracts from Papers.....	345

F atal Disease in Pennsylvania.....	260
Faville, G. C.....	297, 298
Filaria Oculi—Fatty Heart—Syncope and Death during Administration of Ether.....	498
Fleming, George.....	517
Foot and Mouth Disease.....	196, 460
Four Cases of Ringbone treated by Neurotomy.....	343
Fowl Cholera and the Germ Theory of Disease.....	335
Fracture and Dislocation of Patella.....	239
Fracture of the External Angle of the Ilium Causing Fatal Hemorrhage.....	544
Fracture of Forearm.....	119
Fracture of Neck of Femur.....	72
Fracture of Os Suffraginis.....	302
French Horses.....	26
Frinck, Jas. F.....	171
From Soundness to Unsoundness.....	558
Fungosus Toxicum Paralyticus.....	345
 G arrison, John B.....	120
Gibier, M. Paul.....	452
Glanders in the Army.....	26
Glanders and Farcy in the Army.....	17
Glanders in Human Subject.....	262
Goitre in Lower Animals.....	199
Galt, J. B.....	395
 H airy Tumors of the Withers.....	435
Hanshew, T. J.....	388
Harvard Veterinary Department.....	366
Harrison, R. H.....	31, 343, 357
Hayem, M. G.....	232
Heavy Heifer.....	91
Hog Cholera.....	316
Holcombe, A. A.....	17, 354, 397, 442
Horses for Food.....	367
Huidekoper, R. S.....	382, 479
Hydrophobia.....	142
Hydrophobia and Dog Muzzles.....	366
Hydrophobic Meat.....	573
Hypertrophy of Liver.....	33
 I gnorance of English Veterinary Qualifications in American Sporting Journals.....	125
Imaginary Wrongs.....	250
Immunity against Anthrax with Attenuated Virus.....	393

Importance of Quarantine Regulations.....	511
Important Changes in New York Quarantine Regulations.....	200
Importation of Cattle.....	90
Influenza.....	90
Influenza or Cellulitis.....	127
Inoculation of Frogs.....	420
Inoculation of Tuberculosis Matter in Man.....	317
Interesting Statistics.....	197
International Veterinary Congress.....	289
Invitation.....	259
Ischuria Due to Intra-Pelvic Abscess.....	181

J ames, H. F.....	468, 537
--------------------------	----------

K emp, J. S., Jr.....	441, 454, 498, 500, 541, 544
Kidney, G. H.....	364
Klench, J. P.....	116, 358, 359, 435, 485, 517
Koch, Robert.....	392

L ambert, M.....	180
Lanlaine, M.....	63
Large, A.....	545
Large Colt.....	366
Large Heart Clot Following Purgation.....	10
Legislation Needed for the Prevention of Pleuro-Pneumonia....	62
Legislative Protection Needed....	90
Legislation Regulating Veterinary Practice in States.....	173
Leucoeythemia.....	163
Liautard, Prof.....	117, 303, 387, 447, 495, 538
Liberal Donation to Veterinary College.....	419
Live Stock in New York.....	199
Live Stock Restaurant.....	142
Lord, R. P.....	252
Lusus Naturæ.....	199
Lyman, C. P.....	570

M alignant Disease.....	572
Malignant "Pink-Eye".....	573
Mason, Erksine.....	134
McInnes, B.....	10
Mechanism of Stoppage of Hemorrhages.....	232
Medical Association of the American Veterinary College.....	563
Medicated Mass—Peat Powder.....	461
Melanosis in the Dog.....	34

Melanotic Tumor.....	31
Metastatic Abscess in the Liver of a Horse.....	482
Meyer, J. C. Jr.....	239, 380, 482
Michener, J. C.....	345
Microbes of Diseases.....	461
Malleran, M.....	27
Monstrous Calf.....	298
Montreal Veterinary Association.....	564
Montreal Veterinary College.....	81
Mule Disease.....	259
Museums as Educational Adjuncts to Medical Colleges.....	136, 191, 252
Museum Presentation.....	73

N aphthol in Skin Diseases.....	512
Navaro, M.....	28
New Australian Veterinary Journal.....	62
New Book.....	197
New Disinfectant.....	142
News and Sundries.....	90, 141, 196, 258, 316, 366, 418, 460, 511, 572
New Jersey Birds.....	26
New Remedy.....	299
New Veterinary School.....	318
New York State Veterinary Society.....	37, 84, 132, 190, 312, 361, 406, 454, 501, 557
Neurotomy in the Treatment of Ringbone.....	28
Northern Cattle in Texas.....	418
Notice.....	89, 135, 174, 459
Notice to our Subscribers.....	495
Numbers of Review Wanted.....	386

O bituary.....	134, 252, 314
Observations on Purpura Hæmorrhagica.....	171
Odd Numbers of Review.....	89
Oestrus Ovis—Strongylus Filaria.....	347
One More Bacillus.....	511
Operation for Oscheocele.....	537
Original Articles.....	1, 41, 93, 147, 203, 265, 321, 371, 423, 463, 513
Ontario Veterinary Association.....	566
Ontario Veterinary College.....	129
Osler, Prof.....	6
Osteo-Porosis.....	348
Our Sixth Volume.....	25
Oxygenated Water in Surgery.....	236

P aralysis of Tongue, Cured by Electricity.....	249
Parasitic Tuberculosis of the Dog.....	63

Pasteur's Process Adopted.....	258
Pathological Histology.....	174
Pathological Physiology.....	236, 393
Pean, M. M.....	236
Peabody, C. H.....	300, 301, 302, 413
Peritonitis.....	245
Pennsylvania Free from Lung Plague.....	179
Peters, A.....	496
Phthisis by Inhalation.....	260
Physiological Chemistry.....	235
Pierced Eye.....	358
Piersal, George.....	451
Physostigminum in Colic, Overfeeding and Dyspepsia.....	382
Pleuro-Pneumonia Controversy.....	70
Pleuro-Pneumonia in Maryland.....	186, 258, 418
Pleuro-Pneumonia in New Jersey.....	460
Pleuro-Pneumonia in Pennsylvania.....	258, 419
Poisoning in a Cow by Euphorbia Marginata.....	353
Poison for Tubercular Bacteria.....	413
Pott's Fracture in the Dog.....	117
Prevention of Anthrax—Transmission of Immunity from Mother to Offspring.....	231
Prevention of Hydrophobia.....	573
Presentation to Dr. McEachran.....	458
Preservation of Anatomical Specimens.....	91
Preserving Parasites and coloring by Easine and Potash.....	174
Professional Notes.....	39
Prolific Cow.....	316
Prolific Stock.....	29

Q uarantine for Imported Cattle.....	261
Quarantine Stations.....	419
Quarterly Journal of Veterinary Science in India.....	445

R abies in a Mule.....	349
Rabies Successfully Treated.....	258
Rare Dermatoid Tumors in the Horse.....	447
Recurrent Fibroma.....	297
Resuscitation of Animals after Exposure to Extreme Cold.....	144
Regnard, P.....	225
Regulation of Veterinary Practice.....	85
Regulation of Veterinary Practice in New York State.....	59, 80, 183
Reinhart, N. E.....	348
Remedy for Trichinosis.....	316
Renew Your Subscription.....	27
Reported Rinderpest.....	143
Report of the Committee on Diseases.....	303

Report of the Minister of Agriculture of Canada.....	123
Report of Treasury Cattle Commission.....	123
Reports of Cases.....	239, 297, 357, 395, 500
Report of National Board of Health.....	444
Review.....	123, 191, 364, 410, 411, 504
Reynold, Dr. John.....	72
Ring, Chas. F.....	49, 103, 156, 220, 274, 328, 376
Ripley, E. V.....	314
Robert, Josiah M.....	136, 191, 252
Robertson, J. L.....	163
Rogers, T. B.....	47, 245, 378
Rowland, W. B.....	246

S	
Saceven, P. J. T.....	177, 179
Salivary Calculi.....	359
Salmon, D. E.....	293, 335
Salting Trichinosed Meat.....	316
Sanitary Legislation.....	73
Sanitary Veterinary Boards.....	493
Saunders, Fred.....	121, 539
Scarlet Fever and Butcher's Meat.....	200
Serious Loss.....	573
Shafer, Henry.....	119
Singular Longevity.....	90
Slaughter House Examinations.....	368
Society Meetings.....	35, 84, 132, 190, 310, 361, 406, 454, 501, 557
Spinal Meningitis, the Result of Copulation.....	246
Splenic Fever Vaccine.....	90
Standing of American Graduates in England.....	88
Strange Disease.....	366
Strangulated Inguinal Hernia.....	380
Strangulated Scrotal Hernia.....	300
Subsidy to Pasteur.....	511
Successful Extirpation of the Spleen.....	259
Successful Caesarian Section.....	47
Superfoetation.....	419
Swine Plague.....	316, 367

T	
Tenia Mediocanellata in a Cow.....	496
Territorial Veterinarian.....	142
Territorial Veterinarian in Wyoming.....	61
Texas Fever.....	316
Texas Fever and the Cattle Commission.....	237
Texas Fever in Kentucky.....	413
Texas Fever of National Importance.....	293
Thanks to Our Friends.....	236

Thomas, M.....	231, 393
The Army Veterinary Department.....	354
The Australasiaian Veterinary Journal.....	446
The Berlin Cattle Market.....	479
The Danish Veterinary Society.....	197
The Discovery of the Bacillus Tubercle.....	200
The Dissemination of Texas Fever, and How to Control It.....	398
The Ethnological Museum in Paris	261
The Fourth International Congress of Hygiene.....	262
The Horse's Foot.....	1, 41, 93, 147, 203, 265, 321, 371, 423, 463, 513
The Operation for Scrotal Hernia of the Pig.....	378
The Pasteur Process	367
The Position of House Surgeon Vacant.....	459
The Principles and Practice of Veterinary Medicine.....	411
The United States Veterinary Journal.....	446
To Readers of the Review.....	459
Torsion of Uterus.....	298
Toussaint, M.....	176
Townshend, N. S.....	242
Treatment of Glanders and Farcy.....	436, 485
Treatment of Lameness due to Embolism.....	67
Trichinæ in Adipose Tissue.....	573
Trichinæ, Lecture on.....	11, 54, 110, 226, 282
Trichinæ Wanted.....	238
Trichinosis	141
Trichinosis in American Swine.....	143
True Dislocation of Patella.....	121
Tuberculosis in Central Nervous System of Cows.....	143
Tuberculosis in Cows.....	507
Tumor of Guttural Pouches.....	351
Tumor on the Fibula.....	116
Two Cases of Esophagismus in the Horse.....	27

United States Veterinary Medical Association	35, 238, 283, 310
Unusual Mortality Among Colts.....	242

Vaccination Against Anthrax.....	29
Venereal Diseases of Man and Lower Animals.....	{ 49, 61, 103, 156, 220, 244, 328, 346
Ventral Hernia	350
Veterinary Colleges	290
Veterinary Colleges Medical Societies	492
Veterinary Health Boards.....	493
Veterinary Jurisprudence—Decision in Horse Sale.....	413
Veterinary Practice For Sale.....	40
Veterinary Surgeon—Title of M.D.	39

Veterinary Surgeon Wanted.....	39
Veterinary Surgeon Wanted in Milwaukee.....	459
Vitality of Trichinæ in Salted Meats.....	176
Violet, Th.....	181
Volvulus in Cow—Resection—Formation of Artificial Anus.....	179
Volvulus in Heifer—Resection—Recovery.....	144

White Deer.....	366
Wholesale Vaccination.....	198
Wiltshire, S.....	208, 265
Winchester, T. T.....	347
Wire in Cow's Heart.....	301

Zoology.....	176
Zundel, A.....	1, 41, 93, 147, 203, 265, 321, 371, 423, 463, 513

AMERICAN VETERINARY REVIEW,

APRIL, 1882.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

BY A. ZUNDEL.

(Continued from page 547, Vol. V.)

CONTRACTED HEELS—HOOF BOUND.

SYNONYM: *Zwanghuf*, German; *Encasleture*, French; *Incastellatura*, Italian; *Encatenadura*, Spanish.

This name has been given to a defect of the horse's foot, by which it becomes characterized by its general narrowness, more marked, however, in the posterior than the anterior part. It is especially marked by the diminution of the lateral diameter of the horny box, the deformity consisting in a greater or less contraction of the heels and of the quarters.

It is principally observed in the fore feet, and it is there only that it presents the characters we are about to describe. This is due to the fact that in the fore legs there is need of a certain expansibility in the posterior part of the foot, which, especially during the action of locomotion, receives the weight of the body; while the contraction of the hind feet, gives rise only to an ordinary form of lameness. Sometimes one of the anterior legs only is affected; sometimes both, and in this latter case, the alteration is usually greater in one foot than in the other. Some horses are also seen whose feet are contracted only on one, usually the inner side, while the other preserves its normal form and directions.

Sometimes "hoof-bound" is only a simple deformity, without lameness and without serious result. But in most cases, it constitutes a very serious affection, which renders many horses useless and almost without value. It is of more common occurrence than is generally admitted, and gives rise to many other affections of the foot. Cases of lameness treated as located in the shoulder, or as navicular disease, are very often nothing but the result of commencing contraction of the heels. True navicular arthritis and hoof-bound are closely related. Whether the disease of the sesamoid sheath, arising primitively brings on the subsequent contraction; whether the contraction already existing gives rise to the alteration of structure which constitutes the disease so named, cannot always be determined. Hoof-bound was known in old times, and the oldest hippiatrics have proposed means to cure it. Riders especially have studied it, because the disease is most common in fine saddle horses, whose feet are small. It is frequent in Turkish and Spanish horses, and animals from the Pyrenean districts, but common horses are not exempt from it.

H. Bouley describes two forms of the disease, the *true* and the *pretended* or *false* contraction. In the first, the hoof is very narrow, sometimes even concave on its lateral face, to such an extent that its antero-posterior considerably exceeds its transverse diameter; while at the same time its wall is more vertical, and the heels considerably higher than normal, and the foot looks like that of a mule, of which this is recognized as the normal appearance. In the false contraction, there is merely a diminution of the transversal diameter of the horny box in its posterior parts, the foot being narrow and contracted at the heels only.

We prefer to recognize a *total* contraction where the whole foot is contracted, and is smaller than its fellow; *atrophied*, so to speak; consisting in a contraction *of the quarter*—when it is principally narrow in those quarters, the condition extending back to the heels—and a contraction *of the heels* when this is well marked from the quarters to the heels only. A *coronary* and a *plantar* contraction have also been designated, depending upon whether it occurs at the superior or inferior part of the foot, and

there are cases where the contraction is *intermediate*, that is, in the middle of the foot only, while it has its normal size, both at the coronary band and at the plantar border. *Single* and *complicated* contractions have also been named. It is admitted that it may be *congenital*, though rare; most often, however, it is developed by itself, as a result of special causes.

I. *Symptoms*.—The physiognominal aspect of the hoof-bound foot is characteristic, and it is by this that we shall begin the symptomatology of the disease. When the disease is total, the complete general dimensions of the foot are observed to be smaller than would be required by the size of the animal affected; most frequently the hoof has an oval form, consequent upon the antero-posterior diameter exceeding the lateral, which is generally diminished. In the contraction of the quarters, the narrow condition of the foot is specially marked from the centre of the quarters back to the heels. In contraction of the heels, the diminution is very marked from the centre of the quarters to the end of the heels, so that the two sides of the wall converge towards each other posteriorly in following a nearly straight line, instead of the circular appearance of the normal state, and the heels have principally lost their round appearance, and are elongated, and even pointed in appearance. The wall, in the regions where the contraction is more marked, that is, behind, is either perpendicular to the ground, or even oblique downwards and inwards, in such a way that the coronary circumference is greater than the plantar, and consequently it represents an inverted truncated cone.

The opposite form of contraction, that of the coronary, is seldom seen, and we may ignore it. The wall is irregularly rough and ramy, and without its shining appearance. The heels are generally high, nearly as high as the toe, though it is not so severely altered in cases where the heels only are contracted. As a consequence of the contraction of the plantar border of the wall, the sole seems to become folded in the direction of its antero-posterior axis, and it shows a much greater concavity on its internal face than in the normal state. This cavity is then filled by the frog, considerably reduced in size,

thus presenting an idea of the severity of the contraction. Most frequently it is a thin, thready body, flattened on its sides by the closing of the bars; its branches, thin and narrow, resembling two bands so closely resting on each other, that the lacuna which separates them is no more than a narrow fissure, which will scarcely admit the introduction of the thin blade of a knife, and from the bottom of which escapes a sero-purulent, gray or blackish liquid; the lateral lacunæ being also transformed into two narrow and deep fissures, filled with the same fluid. The bars, generally high, assume a direction perpendicular to the ground, instead of being oblique, as in the normal state, from the centre of the foot towards its circumference.

In all the regions of the foot, but especially at the wall, the horn is so dry and hard that sharp implements cannot cut its cortical covering, while it is at the same time brittle, and hence numerous superficial fissures appear at the quarters, and the outside and inside toes, the frog itself being hollowed by fissures upon its body and its branches. Sometimes it happens that the bars show deep fissures, running from above downwards, to the extremity of the lateral lacunæ, which are thus continued by a crack of the heel up to the skin of the coronary band. There is often a separation of the wall and the sole, the formation of what has been called a double wall, or false quarter. Quarter cracks are commonly met with it. Corns are frequently seen also in connection with it.

Whatever may be the form of the contraction, it is generally accompanied by pain, manifested by change of position while at rest and by lameness when in action.

If only on one side, the affected leg is carried forward, and thus relieved from the too painful pressure which would take place if it remained in a vertical direction under the centre of gravity. When both feet are diseased, the horse is constantly moving and balancing himself, pointing the legs alternately and sometimes stretching both legs forward, as in laminitis, but always moving, so as to push his bedding under him and away from his fore feet.

If the pain is slight, there is only a stiff gait, and the ani-

mal hesitates and stumbles easily. But if the disease is advanced the lameness is great and the animal is very groggy in his gait. He fears to rest on his heels, which without being a peculiar characteristic is a symptom which presents, however, a particularly noticeable condition. While there is hesitation in the action of resting, there is difficulty in that of the shoulder. This is principally observable when the disease affects both feet. The shoulders then seem to be fixed to the trunk, and their motion forward is very limited. The symptoms are mostly more marked when the animal leaves the stable. It may then happen that the pain temporarily losing somewhat of its intensity as the horse is moved, the shoulders become more free, the liberty of action returns, and once warmed up, the animal may offer a totally different appearance from that when first leaving the stable. But as soon as they become rested, the pain returns as severely as before, if not more so, and with it the same exhibition of symptoms.

The examination of the unshod foot while it is warm, shows the extreme sensibility of the heels. The foot being pared, generally one may observe, in the region where the contraction is most marked, yellowish or reddish discolorations, evidences of the bruises in the living parts, as well as of the serous or bloody exudations which have taken place on their surfaces. These indications are especially abundant on the level of the sole and wall. If the contraction is old, there is at that point a pulverulent mass which when removed, leaves a cavity which sometimes extends upwards under the quarters. It is a separation of the wall, of two or three centimeters in depth.

An important observation for hoof-bound, and which assists in its recognition, is the increased wear upon the shoes at the toe, which takes place not only when animals are working, but also while idle in the stable as the result of pointing and scraping the stable floor. The horse which has both feet diseased is constantly in motion, to such an extent that his shoes are entirely worn in a few days.

At times the pain is so great that it gives rise to general symptoms; the animal becomes anxious, loses his appetite, re-

fuses his food, lies down most of the time, and rises only with difficulty.

II. *Complications*.—We have already seen that *quarter cracks* and *dry corns* are common affections of contracted feet. Exostosis of the phalangeal region is also commonly met in such feet, especially side-bones. Knuckling, and diseases of the tendons and of their sheaths are also often caused by contractions of the feet. The rest of the foot on its whole surface is thus perverted and the tendons become retracted, painful and swollen.

Navicular disease is so often met with in company with contracted feet, that one disease is frequently mistaken for the other.

Laminitis has been said to be also one of the complications; if so, it is at least, quite rare in its occurrence.

Tetanus has sometimes been observed among its associations, and Hartman attributes the development of so-called idiopathic cases of that disease, to this condition of the feet.

The emaciation of the affected leg is a complication seen also, with other forms of lameness.

(*To be continued.*)

CESTODE TUBERCULOSIS.

☞ A SUCCESSFUL EXPERIMENT IN PRODUCING IT IN THE CALF.

BY PROFESSOR OSLER, M.D., McGill University, and A. W. CLEMENT, of Lawrence, Mass., student in the Montreal Veterinary College.

It is a curious fact, and one which requires further study and explanation, that while the *Tænia Saginata* is the common tape worm of this country, its larvæ, the measles of beef, are very seldom met with. On the other hand, while *T. Solium* is by no means so prevalent, yet its larvæ, the measles of pork, are not at all infrequent. Cobbold* refers to this, and states that "not a single instance has been recorded of the occurrence of these cystic parasites in the United Kingdom, except in our experimental animals." Of course much more fresh beef and

*Parasites, 1879.

veal is consumed than fresh pork, and the former is, as a rule, less thoroughly cooked, and it may be, as we shall state hereafter, that measly veal is not as readily detected as measly pork. The prevalence of tape worm is directly dependent upon the efficiency with which the meat inspector and the cook perform their duties. No infected carcase should escape the one, and a measly steak or a fillet of veal from the kitchen of the other, could be eaten with impunity.

Experimental proof of the relation between the beef cysticercus and *T. Saginata* was offered by Leuckhart, who, in 1861, successfully reared the measles by feeding a calf with ripe segments. Mosler, Gurn and Zeuker, in Germany; St. Cyr., in France; Perroncito, in Italy, and Cobbold and Simonds in England, have repeated the experiment, in most instances with a positive result. So far as could be ascertained, no experiments of the kind have been made in America.

In order to procure specimens of measly veal, and to afford the students of the veterinary college an opportunity of studying a case of cestode tuberculosis, we fed a calf with fifty ripe segments of a tape worm, believed, from the characters of the segments, to be the *T. Saginata*.

The animal, a female calf, aged three days, weighing seventy-five pounds, was fed, November 22d, at the veterinary college. The temperature after the feeding was 103-4°. The animal was kept under observation for seven weeks, and a daily record kept of the chief symptoms, which briefly summarized, were as follows: During the first week no special change was observed; the animal fed well and seemed lively. With the exception of the observation made just after the feeding, the temperature did not rise above 102-5°. The pulse range was from 112 to 130. The fœces were soft, one day mixed with a quantity of gelatinous material. No segments were observed, but microscopical examination on the third day after feeding determined the presence of numerous ova. In the second week the animal did not appear so well. On December 2d the temperature rose to 104-6°. The pulse kept over 100, of moderate volume. On one day the animal seemed stiff in the limbs and disinclined to move about, but

next morning was as lively as before. The fœces kept tolerably consistent; no ova were found on subsequent examinations. During the third week there were no special symptoms to attract attention; the food was taken very well, and superficial observation would have judged the calf to be healthy. The temperature kept up was over 103° and on two days above 104° . The pulse decreased in rapidity, sinking below 100, the range being from 86 to 95. In the 4th week the temperature was above 104° on five days, and the pulse was a little quickened. There were no intestinal symptoms; muscles not stiff, and beyond a slight weakness, the animal did not appear very ill. During the fifth and sixth weeks the *status quo* was maintained; temperature, between 103° and 104° ; pulse, about 90. During part of the Christmas vacation the daily record was not kept. In the seventh week no special change; food was taken well and the animal was active. It had got thinner, but this may have been owing to an insufficient supply of nourishment. On January 12th, fifty-one days after the feeding, the animal was killed, as it was thought that the *cysticerci* would be fairly well developed. *Post-Mortem*.—Body somewhat wasted; *panniculus adiposus* thin. The general lymph glands were much swollen. Apart from the presence of the measles, nothing abnormal was found, so that the record may be limited to an account of their distribution. In the *abdomen* they were numerous in the omentum and in the fatty capsules of the kidneys. The liver was almost free: only two were found. Each kidney contained six or eight. In the thorax, none; in pleura, a dozen or more in each lung; in the heart, tolerably numerous, particularly in the right ventricles. They were very evident beneath both peri and endo-cardium. The voluntary muscles were, as usual, the favorite locality, and presented a moderately abundant infection. The diaphragm did not contain very many; the tongue was in places thickly studded, and they could be easily seen beneath the mucous membrane; of the skeletal muscles those of the thorax and back were most affected, and every muscle contained several examples.

As regards their obvious characters, the cysts were ovoid, with semi-translucent appearance, and usually a central opaque spot.

They varied in length from three to six mm. The cysts were tightly embraced by the intercellular tissue in which they lay, but a little careful tearing was sufficient to disengage them. Microscopical examination showed the larvæ to be in an advanced stage of development; in the majority the head, with its disks, was well formed; some were immature, and the head imperfectly developed.

The experiment was as successful as could be wished and we have procured a supply of measly veal.

Among points of interest in connection with the case, the symptoms take the first place as the clinical history of the affection has not been carefully studied in many instances.

The severity of the symptoms in any case of cestode tuberculosis will depend upon the number of ova ingested and the number of larvæ which penetrate from the intestines to the system at large. The more numerous, the greater the constitutional trouble. If only a moderate number of ova are ingested, the animal may not display any special symptoms. In Leuckart's original experiment, the calf, three weeks old, received scarcely fifty ripe segments, but death followed on the twenty-fifth day, apparently caused by the eruption of the cysticerci throughout the body. In one of the calves of the Cobbold-Simonds series, over four hundred ripe segments were given during two months, yet the animal did not appear seriously ill. But when killed, it was estimated that over twelve millions of cysticerci were in the organs and flesh. In the present instance, the constitutional disturbance was slight and the fever moderate, and there was no special affection of the muscular system. The normal temperature of the calf is about 103° , so that there was no fever until the second week, when the temperature ranged to nearly 105° ; slight pyrexia kept up through the third, fourth and fifth weeks, and it was the persistence of this which led us to suppose that the animal had become infected. There was no sudden rise of temperature, such as might be supposed to occur at the period of migration of the proscolices. In Zurn's case,* which is the only one we can find with a carefully recorded clinical history, the tem-

* Die Parasiten des Menschen Kucheumeister und zum 2te Auflage 1881.

perature range was much higher, and the general disturbance very great, death occurring on the twentieth day. In our animal the more severe course might have been expected from the large number of ripe segments administered; but, perhaps the passage of many of the eggs in the fœces may have had something to do with the mildness of the attack.

How does it happen that the *T. Saginata* is so prevalent, when its "measle" is apparently so scarce? Several causes bring this about. In the first place, the beef "measle" is smaller than that of the pork, and is not so opaque; in consequence, it is more readily overlooked; we are sure that any meat-inspector, unless specially instructed, would have *passed* the flesh of our experimental calf. The larvæ did not at once catch the eye in the red flesh, as in the case of *cysticercus cellulosæ*, but required to be looked for, though five to six mm. in length. Secondly, it is not improbable that many of the animals from which the infected meat is obtained are not extensively diseased, but present only one or two examples, easily overlooked in dressing the carcase. Calves and oxen are much less likely than pigs to get an entire strobile of a tape worm, or even many segments. And, thirdly, a very much greater quantity of beef and veal is consumed in a fresh state than of pork, and the former meats are not, as a rule, so thoroughly cooked. It is quite common to see joints on the table, the central parts of which have not been raised to a temperature sufficient to kill the larvæ.

LARGE HEART-CLOT FOLLOWING PURGATION.

BY B. MCINNES, JR., M. R. C. V. S.

December 21st, 1880, a mare, about eight years old, was brought to me suffering with very severe colicky pains.

History: She had been brought here about two years previous, and worked in light harness. After being here about a year, she had a slight attack of laminitis, after which she was thought unfit for city work, and sold to go into the country, where she was poorly fed and cared for. She had been in the city for

about a week, and when brought to me was in an emaciated condition. I therefore concluded that her digestive organs were weak, and she had been overfed.

Treatment : After the administration of several colic balls, with no cessation of pain, I gave a full aloetic cathartic, which began to act freely upon the bowels the morning of the third day. Violent intermittent pains continued all this day, and the mare partook of no food. These pains continued until the evening of the seventh day, when she died suddenly.

Post Mortem revealed a large polypus, filling the right side of the heart, the neck of it passing into the pulmonary artery. It presented the following dimensions: Weight, $13\frac{1}{2}$ ounces; length, 10 inches; greatest circumference, 10 inches; greatest diameter, $1\frac{1}{2}$ inches.

[Examination of the specimen kindly sent by Dr. B. McInnes proved it to be a large heart-clot—ED.]

TRICHINÆ,

A LECTURE DELIVERED BEFORE THE STUDENTS OF THE
AMERICAN VETERINARY COLLEGE.

BY F. S. BILLINGS, V. M.

(Continued from page 554, Vol. V.)

According to the previously given statistics with reference to Trichinæ among swine in Germany, it is more than sufficiently evident that we have the unenviable and damaging reputation of having an infinitely greater percentage of trichin-infected swine in this country than they have in Germany.

The percentage of trichiniasis among the swine examined at Restock is, as before stated: 1.3543 for Brunswick; 1.8963 for Prussia, according to Eulenberg, 1.2032. While for the United States, according to the "Chicago Academy of Sciences" we have 28 out of 1394 swine trichinous, or 1.50; and according to another Chicago report, 8.100, or $12\frac{1}{2}$ per cent.; and according to our own examinations, 345 out of 8773, or 1.25. There is no doubt that most of the swine which we examined were from

the west, yet no one well acquainted with the circumstances would, I think, assert that the hygienic conditions under which our western swine are raised, are not superior to those of the famed "home-fed" porkers of the small New England farmer, raised, as they only too often are, in dark, loathsome, poorly ventilated pens, only too frequently under stables, with the house-vaults and sink-drains emptying into them.

Again, whoever has been upon a tour of observation among the agricultural districts of Germany, must have been most forcibly struck with the absurd non-hygienic conditions under which, not only hogs, but the majority of the domestic animals are raised and surrounded, in comparison with those of our own country, especially of the stock-raising west.

It is also of the greatest importance to statistically settle by means of a great number of exact examinations at the hands of competent and strictly honest observers, whether this great percentage of trichin-infected hogs, is to be found among those fattened under the more unfavorable conditions offered by the large western distilleries, in comparison with those offered by the open-air feeding, limited almost entirely to corn, of the western farmer.

This question of trichin-infection of American pork is one, which, at the present, may fail of a proper appreciation by the American people and the respective State Governments. Yet, it is one of great national importance, from an economical point of view.

The rigid inspection which has been begun, and is in the future to be still more rigidly executed; the numerous cases of infected American pork which are generally being reported in continental, especially German papers, and which are always noticed by those of Britain; the too numerous cases of disease among human beings traced to the same, are gradually serving as an "embargo," or at least, as a heavy "import duty," which can but influence our foreign markets in this immense American agricultural production.

We have then, as a nation, to discover why it is that our western swine, raised as they are under what appear to be more

favorable hygienic conditions, are so much more infected with trichinæ than those of Germany, which are nearly all penned, and often given the contents of the out-house to root over.

It is well known that trichinæ have been found among the wild swine of Europe.

It would be interesting to know the facts, in this regard, as to our own wild swine of the southern and western States, as well as the peccaries of Mexico and Central America.

The census of 1870 gives the number of swine in the United States as 25,134,569; if 6 per cent. of this number are infected, then we have at present the enormous number of one million, five hundred and eight thousand, and seventy-four (1,508,074) swine in this country, the consumption of which for food is fraught with serious danger to mankind.

The following freely translated extract is taken from remarks "on the trichinæ in American pork," by Professor Bollinger, of the Royal Veterinary Institute, Munich, Bavaria, from the "Deutsche Zeitschrift für Thiermedizin," vol. 1, p. 220, the same being a notice of a paper on the subject by Dr. Roeper in the "Deutsche Vierteljahrsschrift f. Aeëfent. Gesundheitspflege."

"The author of the paper 'Die Trichinæ der Amerikanischen Schinken,' has made numerous investigations in order to contradict the opinion held in America, that the trichinæ of American pork are an entirely different species from those found in the swine of Germany, and are harmless. (We should like to know where the author got that idea?) Also to contradict the opinion that the peculiar processes which 'American sugar-cured hams' are passed through is sufficient to render parasites harmless."

The author first demonstrated by carefully executed microscopic examinations and measurements, that the American trichinæ correspond with those found in Germany, in form, structure and size. Two feeding experiments with the same upon rabbits proved negative, however. But this evidence is sufficiently counterbalanced by the trichinæ-epidemic in Bremen, where from the consumption of American pork numerous persons (40) became sick.

With reference to the percentage of trichinæ in American pork, we find the following:

Kraemer (Gottingen) found 30 per cent. of the American hams examined by him, trichinous: Fuge (veterinarian, Gott.) found 24 out of 824 American hams infected; singularly enough the sugar-cured hams "were found more seriously infected than those cured in the common way—a mere accident. In Germany, on the contrary, it is estimated that of every 10,000 swine, but one will be found trichinous. (This does not agree with the above-given statistics.)

The following is given as an attempt at explaining the greater percentage of trichinæ among our swine:

"The swine which are brought to the large American slaughter houses are allowed to feed upon the refuse from slaughtered swine, and in this way have time and opportunity to infect themselves. Such infected swine are themselves slaughtered, and again give cause to infection to those that may remain, or which may have arrived later, by feeding upon the refuse of the slaughtered swine. Accordingly, this evil must go on, constantly extending, and all persons must be earnestly warned against the consumption of raw American pork. By the so-called 'rapid smoking' or 'curing process' practiced in America, the trichinæ in the peripheral, or outside parts of the hams are doubtless killed, but those more deeply situated are not."

The author of the above, when speaking of "feeding the swine in our large slaughter-houses with the *refuse* of those previously slaughtered," certainly knew absolutely nothing about the subject upon which he was writing. At neither of the large packing-establishments in the vicinity of Boston is this the case, and we would like to ask the author, how much time does he suppose is given for infection and invasion in establishments killing one thousand or more per day?

It takes, according to the best German authorities, from 5 to 7 days for the newly introduced trichinæ to bring forth their young, from the time of their introduction.

No large American packing-house keeps a lot of swine on hand

for from 5 to 7 days, for they are generally slaughtered as soon as possible after being unloaded from the cars.

While the above assertion is absolutely false with reference to the large establishments, it is strictly true, not only of many small establishments, where hogs are killed for home consumption, but also where they are kept, fattened, and killed by the farmer or raiser, for the use of his family.

Who has not as a boy, while waiting for the longed-for bladder, at a neighboring farmer's, seen the intestines, or their contents, heedlessly pushed into the hog-pen for the swine still remaining, to consume.

This report says further: "the refuse from slaughtered swine at such 'large' establishments is sold to the neighboring farmers as food to fatten their swine, and this also helps to swell the percentage of infection."

Where is this done?

Certainly not in Boston, nor in Cincinnati or Chicago, as the following letters in answer to my direct inquiry will show.

Mr. J. Meyer, Senr., a very competent veterinarian of Cincinnati, writes:

CINCINNATI, Oct. 16, 1879.

During the time that swine are quartered at the larger regular packing-establishments, which is generally from one to three days in the summer months, and from one to six days in the winter months, they are fed on corn and water exclusively. There are slaughter-houses, however, in which both cattle and swine are killed for the *local trade*, where the offal collected from the whole house is cast to the swine awaiting their doomed moment. This food is consumed in an uncooked state. The offal from the larger packing-houses is collected daily by the fertilizing company, and transferred to their factory, where the fats are extracted by the aid of steam, the residue dried and transformed into fertilizing material.

With regard to the conditions at the Chicago packing-houses, Dr. Paaren writes:

CHICAGO, October 16, 1879.

After due inquiry, I herewith have the pleasure to reply to

your inquiry, "If swine at the large Chicago packing-houses are fed upon the intestines and other offal of those previously slaughtered, in a cooked or uncooked condition?"

No hogs are fed within many miles of the stock yards, except an occasional one, kept by an Irish or German woman, and fed from her kitchen. No part of the offal of the slaughter-houses is used for feeding animals of any description. Every packing-concern has an apparatus for this purpose. There are extensive rendering establishments that take and dispose of every dead animal. The gates are guarded so that none can be taken off to any other place. The product of these establishments is prepared chiefly for axle and soap grease; the bones and hair go to the fertilizers. It would be impossible to use any of this matter for food to hogs, as the odor stays with it too closely to allow any one to be deceived by it. There is one separate department where the large alimentary gut is prepared for the use of Bologna sausage makers. There are three or four establishments that take blood and prepare it for fertilizers and sugar refiners. The hair from the packing-concerns is contracted for by regular dealers, who take it to the prairie, where it is spread out, washed by the rain, and dried by the sun; then packed and sold to brush, mattress and other manufacturers. The same with the hoofs and horns. Everything is utilized, and nothing wasted.

Yours truly,

N. H. PAAREN, M. D., V. S.

Bollinger's remarks continue as follows: "if we assume that one in one thousand swine is infected with trichinæ, and from the refuse of the same two more become infected, the following geometric progression may take place: the first year *one* swine infected, the second, *two*, the third, *four*, the fourth, *eight*, and so on, until, in the course of *fifteen* years, we have 16,384 swine infected from a single nucleus of infection."

It is therefore right to warn the people against the consumption of American pork, and the microscopic examination of the same must in no case be neglected, as in the American slaughter-houses the breeding of trichinæ seems to be so regularly and thoroughly carried out, that no organized attempt could be hoped to equal it."

To be continued.

GLANDERS AND FARCY IN THE ARMY.

BY A. A. HOLCOMBE, I.V.S.U.S.A.

To what extent these diseases exist among the public animals is a question I have been trying to approximately determine for more than a year.

The ravages which they made during the war are, no doubt, well remembered by the older practitioners, and although at that time I had not considered Veterinary Medicine as among the professions from which I should select one for adoption, I well remember the public sales of many sorry-looking horses, which were disposed of at the close of the war, a great per centage of which, it is said, were glandered. J. C. Meyer, Sr., the eminent veterinary surgeon of Cincinnati, Ohio, incidentally reverts to the matter in speaking of the doctors (?) employed by the Government as veterinary surgeons during the war. He says:*

“One of them declared that no glandered horse could be found in the whole army; still, among the condemned ones which were sold, about a week or two later at auction, in Cincinnati, at least one third were affected with the disease.”

The immense losses which resulted from spreading these infected animals throughout the country, as Dr. Meyer aptly remarks, “cannot be estimated.”

That the disease should have been so generally prevalent in the army at that time is readily understood when the circumstances attending the public animals are considered.

The inspections made at the time of purchase were then even more imperfect than now, so that many animals were bought totally unfit for the service they were expected to perform, while infectious diseases escaped detection, unless so palpable as to attract the attention of the most casual observer. Under such conditions glandered horses were undoubtedly frequently bought, and once in the army became foci from which the disease spread in every direction. The congregation of thousands of animals in corrals and at picket lines, with surroundings most defective as

*American Vet. Review, vol. III., p. 178.

regards hygienic principles, and in many instances hard work with deficient forage, served to promote susceptibility and greatly increased the resulting mortality.

To these causes must be added the absence of the one means by which the disease could be held in check—the services of educated veterinarians.

But great as were the losses sustained at that time from the want of proper veterinary attendance, comparatively, the army to-day is but little better off.

True, hygienically, the condition of the public animals has been greatly improved since the war, but this change for the better is dependent in great part upon accidental conditions, and as I propose to show directly, when circumstances present the opportunity, consequent losses are proportionately as heavy as they were during the former period.* The usually short campaigns which our cavalry horses are now called on to perform, and the congregation of animals in small numbers at our posts, of necessity tends to diminish considerably the mortality from infectious diseases. But these are simply fortuitous circumstances—not considerate precautions. To trust to a permanent continuance of the former is to invite the disaster which sooner or later follows. Economy is to be attained only by the adoption of the proper safeguards.

To gather reliable statistics of the diseases which affect our public animals cannot readily be accomplished while the army is inflicted with the present veterinary *regime*. Notwithstanding the provisions of General Order No. 36, A. G. O. 1879, require a monthly report of the sick, wounded, condemned, killed, etc., from every company and battery, the information to be gained from the reports has never been published for the information of the veterinary surgeons and officers of the army. That these statistics are reliable is doubtful, when it is considered that with the exception of the reports made by five or six of the veterinary surgeons, they are made up by officers who have but little or no knowledge of animal diseases, and scarce a conception of pathological lesions. To trust to reports of this kind would most likely mislead; but still the reports are not without much value, for if they were properly tabulated by a veterinary surgeon and

published, they would at least direct some attention to the subject and serve to confirm the urgent need the army has for a reorganization of the veterinary department.

But if the reports of the sick, wounded, etc., made by the officers of the army are not reliable as *statistics*, undoubtedly they are usually made in the best of faith and in accordance with what they believe to be the facts obtained from whatever sources are at hand. Are the services of the army veterinary surgeon as conscientiously performed? I regret exceedingly that my experience in the army will not permit an affirmative answer to my question. Let me explain.

After having inspected a large number of horses presented to the Government for purchase, and several hundred horses and mules that had done from one to twenty or more years' public service, without meeting a single case of glanders or farcy, I came to the conclusion that these diseases were by no means common in the army. Still, I believed my short experience could not furnish reliable data on the subject, so on the 9th of April, 1881, I addressed a circular letter to all the veterinary surgeons in the service, requesting replies to the following questions: How many cases of glanders have you seen in the army horses and mules, and when and where did you see them? I received the following replies: From J. B. Going, reporting three cases at Fort Clarke, Texas, two being horses and one a mule; one from W. H. Going, Fort Meade, Dakota, stating that he had seen a number of cases of the above diseases, and that he would prepare the statistics at the earliest opportunity. I have not yet received them. I also received a reply from Jas. Humphries, Fort Custer, Montana, saying that he had no record of the cases of disease occurring at his post; one from C. R. Leverett, Fort A. Lincoln, Dakota, in which he states that he saw an outbreak of glanders at that post in February, 1879, but that Dr. Going was the veterinary surgeon there at that time, and he (Leverett) had no record of the cases. C. L. Hingston, Fort D. A. Russell, Wyoming, reported one case of farcy in the horses at that post. He says: "I believe glanders and farcy in the army is an exceptional disease."

In my letter asking for information, I stated the object to be to publish the statistics obtained for the benefit of the profession and the Government. The results of my search for knowledge on the subject were not of a very satisfactory character. Some of the veterinary surgeons did not consider the matter worthy of attention; others have kept no record of cases! while others have not furnished the information promised. So much for the assistance and statistics obtained from the Army Veterinary Department.

Turning to my book containing a record of the cases which have occurred here under my observation, I find that the first case of glanders came to the hospital on the 1st day of May, 1881, to be treated for abscess of the right wall of the chest. I believe the case is interesting enough to give in detail.

The subject was a young pack-mule that had been sent here for recuperation from one of the posts in Colorado, about the beginning of the year. Like the others sent here for that purpose, he was very thin in flesh when he arrived. Unlike most others, he did not improve much in condition, yet presented no evidences of disease. He first entered the hospital on the 23d of April for a contused wound of the right knee. A small abscess formed, was opened and readily healed, so that he was discharged on the 29th. Two days after he was returned to the hospital with an abscess forming on the wall of the right chest, just below the elbow. Breathing somewhat hurried. An examination was made the next morning, May 2d, and the following entry made: "Abscess opened; contained healthy pus; œdematous swelling on the nose between the *alæ*, resembling purpura hæmorrhagica. Mucous membrane of the nose dark-colored and covered with a thick mucus. No petechiæ." Towards night the swelling of the mucous membrane of the nasal cavities had become so great as to threaten suffocation, so the trachea was opened, and the tracheotomy tube was inserted. Respiration now became comparatively easy.

On the 3d the right submaxillary gland was found swollen, hot, and painful to the touch; temperature 101°, the same as on the 1st and 2d. Discharge from the nose increasing,

and slightly tinged with blood; breathing becoming more rapid and labored, and showing rapid congestion of the right lung. Respiration cannot be performed except through the tube. Mucous membrane shows signs of ulcerating. On the fourth the mucous membrane on both sides was covered with ulcers, and the patient rapidly approaching dissolution. The end was anticipated by destroying the case at once. No *post-mortem* examination was made.

An examination of all the public animals at the depot was now made to determine whether any other cases were present. Four mules were found with suspicious looking abrasions of the nasal mucous membrane; but a close observation in quarantine for two weeks failed to confirm the supposition that they might be glandered, consequently they were returned to duty.

These are all the precautions that were taken to prevent a further spread of the disease, or to detect the development of other cases, for the only reason that the depot quartermaster determined that a veterinary surgeon's services were no longer necessary at the depot.

It is unnecessary to inform the profession that such precautions, or rather want of precautions, are not effectual safeguards against the spread of diseases so contagious as is glanders, but it may interest others. The circumstances attending the animals, with which the case above reported had daily intercourse up to the 1st of May, were undoubtedly such as would afford the greatest facility for the infection of others. These mules, about one hundred in number, were at the time being stabled in a large shed, and daily turned into a small corral for exercise. Not only were they brought in intimate contact with each other while taking this exercise, but worse still, they were turned into the shed in the evening and fastened indiscriminately to the feed troughs, where they stood in contact with their neighbors on either side and noses touching in front. All these animals, during the succeeding few weeks, were sent to different posts in the department, where, if they were infected, they found new fields for doing mischief. That any further losses from this outbreak occurred I have no positive knowledge, but how easy it would have

been to prevent, so far as human precautions could prevent anything, the possible infection of cars, stables, harness, horses and mules from these hundred animals.

The next outbreak of this disease which I saw was at Fort Hays, Kans. I was sent there on the 9th of January, 1882, to treat some cases of epizootic influenza. I found a case of acute glanders in one of the horses belonging to Troop B., 9th Cavalry. An inspection of all the animals at the post being now made, one other case was found. Both were destroyed. Being hastily recalled from this post and sent to Fort Reno, Indian Terr., I recommended that the animals at Fort Hays be re-inspected at the earliest opportunity.

At Fort Reno, I found, not "pink-eye," but glanders. The first horse seen was in good condition, but was discharging a little from the right nostril; the discharge was tinged with blood. The mucous membrane of that side was covered with ulcers. On the 21st an inspection for glanders was begun. *Four* cases were found. On the 22d, *one* case. On the 26th, *ten* cases. On the 30th, *nine* cases. On the 31st, *three*. On February 1st, *four*. On the 4th, *two*. On the 13th, *one*. On the 14th, *one*. All these were public animals, a total of *thirty-six*, and were killed as soon as the disease was developed sufficiently to warrant condemnation. Beside these thirty-six killed under my direction, one had been killed a few days before my arrival, for acute farcy, and one private horse belonging to an officer at the post, was killed under directions from me.

The history of the outbreak offers some interesting features. Nearly all the horses killed at Reno had seen service in New Mexico, where the troops had been for several years, until transferred to the Territory in November '81. With one or two exceptions, these animals were in fine condition, and presented no external evidences of being infected with glanders. The discharge was, in nearly every instance, but a thin watery discharge, and this was by no means continuous, generally being most profuse in the early morning and disappearing toward noon, unless the wind was from the north, when it usually lasted all day.

That the discharge should be limited, except in a few

cases, is, no doubt, to be attributed to the dryness of the atmosphere, particularly when the wind is from the south. Catarrh in the human family exhibits the same peculiarity there, as does also the discharge from wounds. The climate of New Mexico is similar.

Another condition to be remarked was the infrequency of indurated submaxillary glands. How to account for this peculiarity I do not know, unless it also is to be attributed to climatic influences. The climate of New Mexico, some parts of Texas and the Indian Territory, according to the opinions of a number of physicians, offers a considerable immunity to the development of tubercle. Is not this the probable cause for the infrequency of glanderous deposits in the glands and lungs of infected animals in this climate?

Lastly, the glanderous deposits which take place in the mucous membrane of the nose, do not so readily degenerate, and break down from ulcers, as is seen in other climates. It is only in the old cases, as a rule, that ulceration of the nodules is seen.

Where so many of the characteristic symptoms of glanders were absent, skepticism as to the correctness of the diagnosis naturally existed, and this was not removed until *post-mortem* examination was made of cases that, to the laity, seemed entirely free from disease.

Troop F, 9th Cavalry, was most seriously infected. With a strength of sixty-three horses, *thirty* were destroyed during the five weeks they were under my observation. That these horses had been infected a long time there can be no doubt, for in some cases the *septum nasi* was nearly ulcerated through and almost the entire surface covered over with ulcers and nodules. If I am not misinformed, no veterinary surgeon had served with the troop for quite a time, but one of the veterinary surgeons of the regiment had seen them in September or October last and, no doubt, had the opportunity to inspect them. If the inspection was made, the disease was certainly either overlooked or the evidences misinterpreted. If the inspections were not made they should have been. *To send horses from post to post, where they will come in contact with numbers of other animals, without first*

determining that they are free from contagious diseases, is certainly not unattended with great danger.

Had Troop F, 9th Cavalry, been properly inspected before leaving the District of New Mexico, a part of the loss at least might have been averted; for the probabilities are that Troop I, 9th Cavalry, was infected after reaching Fort Reno, as was also Company I, 23d Infantry (mounted), and the animals belonging to the quartermaster's department at the post. How many stables, corralls, cars, and animals were infected by this troop while *en route* to its new station will never be known—the *possibilities* though, afford a subject for very serious contemplation.

A number of the cases killed in Troop F were recent cases and no doubt their development was hurried and favored by a change of climate. Of twenty-four horses from this troop stationed at Oklahoma, an out-post of Fort Reno, and subject to some exposure, *thirteen were found glandered, with not more than one old case among them.* They were at this out-post but thirty days.

The losses resulting from this outbreak up to the time I was relieved by Veterinary Surgeon Tempany, 9th Cavalry, (a period of five weeks), had reached about five thousand dollars. That the end is yet reached can scarcely be expected. But no doubt the disease will be completely stamped out in time, for the officers of the post are fully aware of the danger attending the disorder, and of the measures which must be enforced to eradicate it.

But it would be seeming economy to prevent such outbreaks, so that measures of extermination would not be necessary. This outbreak was great in proportion to the opportunities offered, and the accidental appearance of epizootic influenza at Fort Reno alone was the cause of its detection in time to prevent the general infection of all the animals at the post, and a much greater loss than has already been sustained. To depend upon accidents for the protection of the public animals against contagious diseases is a method of procedure utterly at variance with the teachings of sanitary science and one that should be no longer depended upon. Inspections every ninety days of all the animals in each department can and should be made by a graduated veterinary surgeon.

The last case of glanders brought to my notice was at Fort Leavenworth, on the 27th of February, 1882, in a horse belonging to Troop M, 8th Cavalry. He had been sick for several days and had acute glanders with lung complications. Since then I have inspected all the animals belonging to the cavalry troops and battery of artillery at the post, but without finding any other cases of the disease.

The quartermaster's animals were inspected by a wagon-master! Comments are not necessary.

To conclude, the interesting question now is: How many other posts in the United States are infected? Forts Leavenworth, Hays and Reno, and the camp at Snake River, all of this department, have had cases within the past thirty days. Of the condition of other parts we have no positive knowledge; but is it not more than possible that some of them are infected? To my knowledge, three troops of the 9th Cavalry were recently infected. Is it not reasonable to infer that an inspection of all the other troops of this regiment which have been serving in the same district, would, to say the least, be a judicious procedure? I do not mean to say that the inspections should be made by a young post quartermaster who has no knowledge of animal diseases and who would report, "No signs of glanders here; horses are all in good condition;" but by one whose opinion would be reliable authority in the matter. Veterinary science awaits the opportunity to give to the public animals that protection against disease which can come from no other source. The prospects for some radical changes in this regard are not without hope.

Fort Leavenworth, Kan., March 16, 1882.

EDITORIAL.

OUR SIXTH VOLUME.

Our labors in the editorial department of the last volume of the REVIEW have been amply rewarded by the manner in which the profession has received and appreciated them. One gratifying evidence of this has been the constantly increased circulation, which has been such as to necessitate the issue of second editions

of various months of the REVIEW in order to satisfy the demand. This, of course, is due to the variety and excellence of material which we have presented to our readers, and to a better selection in the subjects of discussion and elucidation. Our thanks are due for many good articles to those who have become contributors to our pages, and we hope that others will follow their good example and assist us in continuing to make the REVIEW what it was intended from the start to become, to wit: the medium of communication and exchange of opinion between the members of the profession throughout all the country.

GLANDERS IN THE ARMY.

That the work which Dr. A. A. Holcombe has imposed on himself is one worthy of his efforts and talents will be granted by all those who are acquainted with him and with his working abilities. Familiar to all of us by the numerous articles with which he has favored us, his name is not only destined to become eminent as a teacher of his adopted profession, but also to win the honor of having worked for the reform of the position of the Army Veterinary Surgeon. His last article on *Army Horses* has undoubtedly been studied with interest by all our readers. It has also been appreciatingly noticed by army journals. To-day we reprint his report of his experience in an outbreak of glanders and farcy in the army, which we have no doubt will be sufficient, when read in Washington, to point him out as the proper person for the position of Chief Veterinary Surgeon in the Army, if such position is ever created, as we have good reason to believe it will be, sooner or later.

CESTODE TUBERCULOSIS IN THE CALF.

It is with pleasure that we call the attention of our readers to the series of experiments which were made by Prof. W. Osler, of McGill University, Montreal. It is long since we have heard from the friends of the veterinary profession in Canada, and we look upon the receipt of this excellent article as the forerunner of others which we may expect to receive from our Canadian

friends. As we have always claimed, the REVIEW is the journal of all practitioners, of all schools, and without doubt it would add to the strength of the veterinary profession on this continent if the example of Prof. Osler was followed by other authorities on veterinary subjects from Montreal and Toronto.

RENEW YOUR SUBSCRIPTION.

Those of our friends who desire to renew their subscriptions are invited to send us notice at once, and to give us their correct address. We have received a number of complaints that the REVIEW has not reached its destination, and duplicate numbers have been sent where it was possible to do so. We are very careful in mailing the journal by the 4th of every month, and shortly afterward it ought to be in the hands of our readers. Change of address ought to be made known to us at once.

BACK NUMBERS.

A few copies of Vol. IV and Vol. V of the REVIEW are to be had by writing to the editor. Price, \$3 each.

EXTRACTS FROM FOREIGN JOURNALS.

TWO CASES OF ŒSOPHAGISMUS IN THE HORSE.

BY M. MOLLERAU.

1st Case.—A bay gelding, very nervous, which performed his work well for a number of weeks from the time he was bought, was found one morning by his owner with an abundant flow of saliva running from both his mouth and his nose; saliva which was thrown out by the motions of vomiting. Brought to the veterinarian, he seems quiet; his head is carried low; his physiognomy is anxious; the ears and neck slightly moist with perspiration; respiration somewhat accelerated; conjunctiva injected; pulse full, 50 per minute; temperature normal. The eyes and nostrils are covered with saliva, which fills up the mouth; the animal is constantly chewing; swallows, and after two or three deglutitions, is suddenly taken with convulsive movements,

bringing his legs together and appearing ready to lie down; his head well extended, and slightly carried to the left, when he throws up all the saliva he has been swallowing. He then resumes his normal position, and goes on chewing and swallowing, to vomit again after a short time. The saliva which is vomited is pure, without aliments, at times clear, at others foamy, sometimes spasms of coughing following its entrance into the respiratory tract.

Supposing the case to be one of dilatation of the œsophagus, the animal was carefully watched and examined, when all of a sudden the symptoms disappeared, and a few hours after, the animal took a light mash without difficulty. A week later, he presented the same lesions, and about two weeks afterwards he was taken with a third attack, which lasted six hours. A fourth attack lasted a whole day. He was then submitted to a treatment of bromide of potassium, 20 grammes at a dose, and for one month remained free from further trouble. After this date he was lost sight of.

2d Case.—Shortly after the time when the first horse had its fourth attack, another case came under the observation of the author. This animal had vomiting of saliva, like the first. He had no convulsive movements, but was constantly throwing up saliva, at times clear, at others foamy. There was the same condition as with the first; the same length of duration; same disappearance of the trouble. He also was placed under bromide of potassium, 20 grammes at a dose, and was relieved until three weeks after, when he had a second attack, which was treated in the same manner for a longer time, and the animal was then radically cured.

The use of the probang so commonly employed in human surgery, was not resorted to in these cases, on account of the difficulty and danger which are so often connected with its introduction in veterinary medicine.—*Archives Veterinaires.*

NEUROTOMY IN THE TREATMENT OF RINGBONE.

BY M. NAVARO.

After considering the unfavorable results obtained by the various modes of treatment in this form of lameness, such as blistering,

alteratives, resolute frictions, firing in lines or in points, which always required the laying up of the animal for several weeks, to find him after the treatment no better than at first, the author recommends the operation of neurotomy, either high or low, as the case may require, and reports the statistics of 32 horses upon which he performed the operation, 21 of which he was able to follow for six months after, and 11 of which have not been seen since their recovery, that is, since they were operated on. He looks upon this treatment as the *practice of the future*. No more firing or other treatment! In all his career the result has been successful; in none has he had the slightest complication, and some lesions of the foot or of the coronet which had been observed and manifested by lameness afterwards, were observed in sufficient time to be relieved. The animal thus operated on, it is claimed, will be able to resume his work in perfect safety after 15 or 20 days.—*Archives Veterinaires*.

VACCINATION AGAINST ANTHRAX.

Recent experiments designed to test the immunity given by vaccination according to the method of Mr. Pasteur, have been made at Melun. The result was entirely in conformity with the ideas expressed by Mr. Pasteur, and proves that the immunity obtained by vaccination holds good for at least seven months. Sheep which were vaccinated in May last, and placed amongst others which had received a virulent inoculation, remained in perfect health. Other experiments will be made, in five months after this, upon sheep vaccinated at Pouilly-le-Fort, which if successful will prove that the immunity continues for at least a year.—*Revue d'Hygiene*.

COMMENCEMENT EXERCISES.

AMERICAN VETERINARY COLLEGE.

The Board of Trustees, the Faculty and the numerous friends of this institution met at Chickering Hall, on the evening of the

6th of March, to celebrate the seventh commencement of the College.

The hall was well filled by the friends of the graduates. The stage was handsomely decorated with flowers, and the music of the 7th regiment band was a harmonious feature in that temple of music. The prayer was given by Rev. Dr. Dorman. The Dean of the Faculty read his report of the work done in the Hospital Department of the College, after which Saml. Marsh, Esq., the President of the Board of Trustees, conferred the degree of D.V.S. (Doctor of Veterinary Surgery) upon the following gentlemen :

Gabriel Smith Agersborg, of Vermillion, Dakota; Horace Ward Atwood, B.S., North Orange, Mass.; Joseph Ferdinand Autenreith, Jersey City Heights, N. J.; William Stoughton Devoe, New York City, N. Y.; Geo. Sherbrooke Houghton, New York City, N. Y.; Lester Heard Harvard, Clinton, Mass.; August Joseph Jeannin, Navarre, Ohio; George Henry Keefer, M.D., Hillsdale, Michigan; James Samuel Kemp, Jr., Holbrooke, N. Y.; John Albert Leighton, New York City, N. Y.; William Manz, Morrisania, N. Y.; William Howard Martenet, Baltimore, Md.; Charles Leroy Moulton, Manchester, N. H.; Frank Risley, Waterville, N. Y.; Everett Woodhull Rowland, Miller's Place, N. Y.; Ward Beecher Rowand, Media, Pa.; Fred. Saunders, Salem, Mass.; Frank Traver, Rhinebeck, N. Y.

Prof. A. W. Stein, M. D., then awarded the following prizes :

The Gold Medal given by the Board of Trustees for the best general examination, to James Samuel Kemp, Jr., D.V.S.

A set of Medical Books, offered by the Alumni Association, for the second best general examination, to Lester Heard Harvard, D.V.S.

A Gold Medal presented by the New York State Veterinary Society, for the best practical examination, to James Samuel Kemp, jr., D.V.S.

A Silver Medal awarded by the Professor of Anatomy for the best examination in this department, to the junior class, was won by William B. Noyes, of Boston, Mass.

An excellent valedictory address followed, by W. B. Rowland,

D.V.S., of the graduating class, and the address to the class was then delivered by Prof. R. G. Doremus, of Bellevue Medical College.

The benediction by Rev. Dr. Dorman closed the exercises, and everybody retired, feeling pleased and proud of the success which had once more crowned the labors and demonstrated the good work done by the institution.

AMERICAN VETERINARY COLLEGE.

HOSPITAL RECORDS.

BY R. H. HARRISON, D.V.S., late House Surgeon.

MELANOTIC TUMOR ON THE SACRO LUMBAR PLEXUS—PARTIAL PARALYSIS.

This was one of the most interesting cases that was admitted into the hospital during the year, especially important and worthy of record on account of the rarity of the lesion, as well as the limited extent of the literature of veterinary science pertaining to the deranged functions of the spinal cord.

The subject was a gray gelding, 9 years old, and weighing about 1,500 pounds in good flesh, who first came under observation at the free clinics. The horse had been purchased by his present owner, a few weeks before, for a trifling amount, with the hope that by rest and treatment he would be able to do slow work. A severe blister had been applied over the loins, but it had been attended with no beneficial results. All the owner knew about the case was that the animal had received a fall, and had never recovered from it. The peculiar symptom manifested was a striking irregularity in the action of the hinder extremities, more marked on the left side than on the right; there was a loss of co-ordination in movement, and the patient presented symptoms similar to those described under locomotor ataxia. In bringing the hind leg forward, it was moved as a whole stiffly, and when placed on the ground would be carried out of its natural course, in extensive abduction and circumduction; in turning round, he would nearly fall, and to make him back was almost impossible

The case being a peculiar one, the owner was advised to leave the animal with us for a few days for observation, before a diagnosis or prognosis was given. This was readily consented to, and the animal was at once placed in slings and carefully watched. Nothing abnormal could be detected by external manipulation; one side compared with the other perfectly; careful rectal examination betrayed no lesion; the posterior aorta and the iliacs were apparently healthy, the appetite was good, and the functions seemed all active and in good working order, except this peculiar alteration in locomotion. The subsequent history of the case, rather imperfect, was found out a few days afterwards. The animal had been used in a lumber truck, and had worked well until he sustained a heavy fall and violent bruises over the loins by the load of lumber falling upon him; afterwards, when recovered from the shock and bruises, was left in his present condition. Dr. Robertson, on seeing the case in the hospital, recalled having seen it several months before, and, after having made a hasty examination, had pronounced it one of locomotor ataxia; after that he had lost sight of it.

The owner was notified that the animal ought to be destroyed, and Dr. Liantard purchased him, so that a careful autopsy might be made for the benefit of the students.

Several opinions were advanced by different members of the profession; as a rule it was considered to be a nervous affection, the exact nature of which was not known. Prof. Liantard thought that a tumor, possibly bony, was pressing on the cord; taking into consideration the fact that the horse had sustained a severe fall, and was partially paralyzed afterward, it was reasonable to suppose that there has been a partial fracture of one of the lumbar vertebræ. In the repairing process a bony deposit had taken place within the vertebral canal, causing pressure on the cord.

The animal was pithed, and a post-mortem examination of the spinal cord revealed that upon one of the main branches of the posterior portions of the lumbar plexus there was a melanotic tumor of the size of a large hickory nut imbedded into the bony structure surrounding and pressing upon that nerve. Little melanotic deposits were also found here and there on the other branches of the plexus. The other organs were not examined.

HYPERTROPHY OF THE LIVER.

An enlarged liver of a horse was sent to us for examination by Mr. Eugene Burget, a student of the College, who has a large number of horses under his care. The gentleman gives the following history of the case: The subject was a brown gelding, nine years old, and about sixteen hands high. On the morning of the thirteenth of February was sent to work, apparently as well as usual; worked in a truck during the day, but was duller than usual, and needed constant urging to keep him at his work; was noticed to stagger several times, and once nearly fell forward on his head; at noon ate his customary feed of oats, but at night and the ensuing morning refused to feed or work, and was sent home by the man who had hired him; during the day he refused all food, appeared dull, and stood perfectly quiet in his stall; nothing wrong was observed about him, except that the urine voided was very highly colored. This animal had been subject to repeated attacks of colic, once or twice a month, for over a year. The next morning he was found cast in his stall, making desperate attempts to get up. When dragged out on the stable floor he suddenly died. Post-mortem examination was made three hours after death. Rigor mortis was well marked, and the body emaciated. On opening the abdominal cavity, a light straw-colored fluid escaped at first, which grew darker until it consisted almost entirely of blood; in all about twelve gallons escaped. The mesentery throughout was of a deep yellowish tinge and covered in many places by fibrinous deposits. The lungs were anæmic and the cavities of the heart were empty; the kidneys were enlarged, engorged and softened, and contained high colored urine in the hilus.

The liver was greatly enlarged and weighed fifty-nine pounds. Viewed as a whole, it was a huge, ill-shapen mass, very dark colored, with irregular, thick borders; at the superior border of the left lobe a large rent was present, with a huge mass of coagulated blood about it; the whole structure was softened and the entire posterior surface of the liver was separated by a large clot from Glisson's capsule, which was much thickened; in some

places, particularly around the inferior border of the right lobe, the hepatic structure was breaking down and showed fatty degeneration.

The measurement of the different lobes was, viz: left lobe, 44 inches in circumference, 21 inches long, 11 inches wide, and 4 inches thick; right lobe, 63 inches in circumference, 24 inches long, 17 inches wide, and 5 inches thick; middle lobe, 38 inches in circumference, 14 inches long, 10 inches wide, and $3\frac{1}{2}$ inches thick.

MELANOSIS IN THE DOG.

BY M. BUNKER, B.S., D.V.S., late House Surgeon.

Some time in July last a huge black dog was brought to the free clinics at the hospital for treatment.

On examination, the dog was found to have on his right side a large tumor. This growth, the owner said, had been there for some months; it had gradually grown larger and now was so large and annoying that he wanted to have something done for it.

On examination the growth was found to be hard to the touch, was bedded in the subcutaneous tissues and not an outgrowth from them.

A diagnosis was made, of probable melanotic tumor. The owner was advised to have it removed, but to wait until cooler weather, as there would then be less trouble to take care of the wound.

The tumor, at this date, was about the size of a goose egg.

The dog was taken away and nothing more was seen of him until Jan. 18, 1882, when he was brought to the hospital again to see if the tumor could be removed. An appointment was made, and the dog brought to the hospital for operation.

At this time the tumor had grown much larger, and was some five inches in diameter, and there had been for some time an offensive black discharge from openings in it. A diagnosis was now made of melanotic tumor.

January 21st.—The dog was put under the influence of an anæsthetic and the tumor dissected out.

The operation was done under the spray and a dressing put

on, this being kept in place by an improvised Dutch collar, being allowed to remain for three days, when it was removed. The wound looked very well, and after dressing with carbolic acid, the animal was sent home with directions to come back every other day for dressing.

This was done until Feb. 8th, the wound setting up healthy suppuration and granulation.

February 8th.—The wound had so far healed that the dressing was left off and the dog directed to come back in a week.

February 15th.—The parts have entirely healed, the swelling of the trunk has subsided, and the wound entirely healed. Patient discharged.

This case is presented to the readers of the REVIEW as a rare case, for while in the horse melanosis is quite common, yet in the dog it is a very rare condition to meet.

The English authorities cite only one case as coming within their observation. The tumor, on removal, was found to be about five inches in diameter, and weighed fifteen ounces and a half.

When the tumor was examined it was found to be a melanotic tumor, confirming the diagnosis made.

SOCIETY MEETINGS.

UNITED STATES VETERINARY MEDICAL ASSOCIATION.

This association held its regular semi-annual meeting, Tuesday, March 21st, at Young's Hotel, Boston, with the President, Dr. Bryden, presiding.

Fully one-third of the members were present.

The Comitia Minora met at 10:45 A.M. Discussion on proposed change of Sections 2 and 3 of Article 8 of By-Laws, resulted by the Committee on Education and Intelligence being directed to report at general meeting.

The Secretary was instructed to again notify applicants for membership of the necessity of presenting themselves, or their credentials, before the Board of Censors at the annual meeting in New York, September 19th, 1882.

John Duane, Jr., D.V.S., and F. W. McClellan, V.S., were favorably reported to the regular meeting.

The minutes of the Comitia Minora and of the general meeting were read and accepted.

On motion, the report of Committee on Education and Intelligence, in reference to alteration of By-Laws, was accepted, and on further motion, the committee was directed to bring the matter again before the Comitia Minora and report again at the next regular meeting.

The regular committees had no reports to offer.

Balloting for Drs. John Duane, Jr., and F. W. McClellan resulted in their admission as members.

The following gentlemen were proposed for membership: By J. S. Saunders, Fred. Saunders, D.V.S., Jas. H. Frinck, V.S.; by C. B. Michener, Chas. Moulton, D.V.S.; Frank Traver, D.V.S., Samuel Kemp, D.V.S., L. H. Howard, D.V.S., H. W. Atwood, D.V.S.; by Robert Wood, Chas. R. Wood; by Geo. H. Bailey, J. Hawkins, V.S.; by T. S. Very, W. W. Noyes. Communications were then read by the Secretary from Drs. Coates, Bunker, Foote, Colsson and Liantard.

Dr. Thayer presented some remarks on an osseous nasal polypus which he successfully removed in 1867. The specimen was a very rare and perfect one. An article on the same subject by Dr. Fleming was read by the Secretary. There was a marked resemblance between the polypi described by Drs. Thayer and Fleming. The discussion following on the use of the wire ecraseur was of much interest, and this form of the ecraseur was very highly spoken of by those who had used it.

The meeting then adjourned to dinner, after which the subjects of splenic fever, Texas fever and quitters were discussed.

The meeting closed with some reports of cases which proved to be of much interest to all present.

WILLIAM BRYDEN, *President.*

C. B. MICHENER, *Secretary.*

MEETING OF THE NEW YORK STATE VETERINARY SOCIETY.

The sixty-eighth regular monthly meeting of the New York State Veterinary Society was held at the American Veterinary College, Tuesday, March 14, 1882, at 8 o'clock P. M.

The meeting was called to order by the President.

The following gentlemen responded to the roll call: Drs. Liautard, Burden, L. McLean, R. A. McLean, Coates, Bunker and Foote.

The minutes of the previous meeting were read and adopted.

The committee appointed to inquire into the standing of Dr. L. M. Crane, who was proposed for membership at the last meeting of the Society, reported favorably, whereupon motion was made and seconded that he be admitted as a member. Drs. Coates and Bunker were appointed as tellers. Result of ballot was the unanimous election of the gentleman as a member of the Society. Dr. Coates proposed the name of Dr. Kemp for membership. The same committee was authorized to serve, that served in the case of Dr. Crane.

Dr. Liautard read a paper on "Dislocations," referring particularly to the "so-called cases of dislocation of the stifle." He endorsed the theory brought forward in a recent meeting of the Société Centrale Veterinaire de Paris, by Mons. Chuchu "that in cases of so-called luxation of the patella, the patella was caught on the upper segment of the inner border of the femoral trochlea. As an illustration of this condition the fact was presented that it is met in animals which have been sick for some time and in which the adipose pad of the joint is reduced as well as the synovial secretion is diminished, conditions which hinder the possibility of excessive movement upwards of the patella by contraction of the triceps cruralis, and difficulty of its returning to its normal position. In the words of Mr. Bouley, this position of the patella was a normal position carried to extreme.

A lengthy discussion ensued, the theory meeting with considerable opposition. The question as to whether the condition should be considered as a dislocation or not, gave rise to a lengthy debate, Drs. L. McLean and Coates taking the stand that when-

ever the articular surfaces of the patella and the femur are not in juxtaposition, it is dislocation, Dr. Liantard claiming that the condition, as it ordinarily gives rise to no inflammation, destruction of parts, or lameness, consequently should not be considered a dislocation. Dr. Bunker cited a case in illustration of the theory of the essay.

A vote of thanks was tendered the essayist, after which the Society adjourned.

H. T. FOOTE, M.D., V.S., *Secretary.*

CORRESPONDENCE.

EPIZOOTIC CELLULITIS.

FORT LEAVENWORTH, Kans. }
March 10th, 1882. }

Editor of the American Veterinary Review :

Dr. Myers, in an answer to my criticism of his article on Epizootic Cellulitis, assumes, as it seems to me, a most remarkable position regarding this condition. He acknowledges that the recent epizooty among horses was influenza, yet insists that it is proper to term the outbreak an epizooty of cellulitis!

Was it the cellulitis or the influenza that was epizooty?

According to my experience with the complaint at Leavenworth, Kansas City, Fort Hays, Kansas, and Fort Reno, Indian Territory, the initial disease in every instance was influenza, the cellulitis being nothing more than a symptom, or at most a sequel.

To call these accidental cases epizootic cellulitis is a misnomer most unwarranted. As well might we so name the œdema and occasional cellulitis of diseases of the liver, heart and kidneys.

Would Dr. M. use the terms epizootic hepatitis, enteritis, pneumonia, etc., for these outbreaks of influenza in which one or the other of these complications prevailed more often than the others?

It would be as reasonable, for even marked œdema was not

present in all the cases I have seen, while cellulitis was most rare.

Evidently, Dr. M. saw the tail first, and mistook it for the dog.

Very respectfully yours,

A. A. HOLCOMBE.

PROFESSIONAL NOTES.

VETERINARIANS RECEIVE THE TITLE OF M.D.

W. J. Coates, D.V.S., who has been for several years connected with the American Veterinary College as Lecturer and Demonstrator of Anatomy, received the degree of M.D. at the commencement of the Medical Department of the University of the City of New York.

Thomas B. Herr, D.V.S., also received the same from the Eclectic Medical College of New York City.

VETERINARY SURGEON WANTED.

Messrs. Stearns & Smith, of Monroe, Wis., have applied to us for a qualified veterinarian. In their letter of inquiry they state that they are in a town of 4,000 inhabitants, in the center of a large stock-raising country, and that a good opportunity is thus afforded to a good and competent young man.

ASSISTANT WANTED.

Mr. W. J. Smith, Veterinary Surgeon, of Genessee, Henry Co., Ill., makes a very good offer for an assistant. A student who would graduate in 1883 or 1884, can find with him a good opportunity to see practice, to continue his studies, and to enter into a partnership which will ultimately give him the entire practice, Mr. Smith being advanced in years and desirous to retire from labor. Applications to him will receive attention at once.

VETERINARY PRACTICE FOR SALE.

A well established veterinary practice in the most central and best locality in Brooklyn, including horse, wagon, instruments, pharmacy, &c., are offered for sale. A full investigation and all information given to parties desiring to purchase. Address B., 174 Jefferson street, Brooklyn, N. Y.

CORRECTION.

In the last number of the REVIEW (letter of Dr. Bryden,) the last two lines of page 573 ought to read "the hoof crowding and injuring the wings of the bone," instead of "corroding and injuring the rings."

EXCHANGES, ETC., RECEIVED.

FOREIGN.—Veterinary Journal, Veterinarian, Clinica Veterinaria, Recueil de Medecine Veterinaire, Archives Veterinaires, Revue fur Thierheilkunde und Thierzucht, Revue de Hygiene, Journal de Zootechnie.

HOME.—Turf, Field and Farm, Prairie Farmer, Breeders' Gazette, Ohio Farmer, Medical and Surgical Reporter, Country Gentleman, N. Y. Weekly Times, Bulletin of the National Board of Health, American Cultivator, National Live Stock Journal, Medical Record, Proceedings of the Medical Society of the County of Kings.

JOURNALS.—Journal of the American Agricultural Association, Farmers' Review, Home and Farm, Topeka Daily Capital, Medical Herald, American Farmer, Annals of Anatomy and Surgery.

COMMUNICATIONS.—J. C. McKenzie, Thos. Surgis, A. A. Holcombe, M. Jos. Roberts, R. Harrison, M. Bunker, C. B. Michener.

PAMPHLETS AND BOOKS.—Trance and Trancoidal States in the Lower Animals, by G. M. Beard, A.M., M.D., Report of the Commissioners on Diseases of Domestic Animals to the Connecticut Board of Agriculture.

for several months without having his feet trimmed and pared by the blacksmith, these are seen contracting by degrees, as they increase in length, and soon assume the aspect of hoof bound.

But these are not the only effects of shoeing in the etiology of contraction. On the contrary, this practice is the most common cause of this lesion of the hoof, if not practiced with the intelligence it requires. We have said, in speaking of corns, that they were proofs of bad shoeing. The same might be said of the contraction. Moreover, corns generally indicate great errors in shoeing, while hoof bound demonstrates the ignorance of the physiology of the hoof, which in action must enjoy the necessary elasticity to relieve the contact with the weight of the body upon the ground. No doubt the theory of Bredey Clark exaggerates the degree of elasticity in admitting a great power of dilatation of the hoof, but it is an opposite excess to deny it entirely. The dilatation of the hoof, though limited, is evident at the heels; especially on feet which have never been shod.—(Merche.) There is especially in the inside of the foot, in the soft and supple parts, a certain compressibility of the hoof, which is often overlooked, and which is interfered with by a too narrow or unmethodical shoeing.

The external dilatation of the hoof is comparatively limited, but on the inside of the hoof, there is in the posterior part of the foot (especially in the fore feet) a movement downwards and outwards of the os pedis, for whether the normal elasticity of the hoof is necessary, either by the physical and physiological constitution or the arrangement of the constituent parts of the hoof. Quite often then, shoeing, especially if too tight, resists the internal pressure. Let us even admit that the dilatation of the heel be normal, shoeing which would prevent it would always produce, at the time of rest, a pressure upon the hoof which would limit the compressibility of the deep soft tissues. The frog especially, formed of a softer horn, and placed under the plantar cushion, must receive this gradual pressure, which diminishes by degrees as the hoof becomes harder, and is reduced considerably as it reaches the external horny layers.

The errors committed in shoeing, and which predispose to hoof bound, vary. The first is the manner in which the foot is

pared ; too often the heels are lowered to excess, while the toe is allowed to remain too long ; too often again the bars are hollowed too deeply, thinned too much, as well as the frog. The wall then tends to retreat, as it is no longer protected behind. In reducing the height of the heels, in opening them, the tendency to contraction is increased ; the thinned hoof dries up, the lowered heels have lost their strength, and the bars are unable to perform their functions.

A vicious adjustment also contributes to contraction. When the shoe is so prepared that its upper face is concave, and its branches form a plane inclined from without inwards, and when this face extends back to the heels, there is a circular pressure produced upon the inferior border of the wall. There is a case in which the foot has a tendency to drop, pressed in as it also is by the weight of the body as the foot rests on the ground.

Another wrong practice is to place the nails too near the heels. The fixing of the shoe on the foot tends always to produce contraction, as Bredey Clark observed ; it especially prevents the widening of the hoof, as remarked by Rodet and Coleman. But this effect of the nails is well marked at the heels, where they prevent the dilatation of that part of the foot.

These effects of shoeing are to be observed so much the more rapidly and seriously when the hoof is thicker, denser, and of a finer structure, as it is observed in small feet. In these feet, the hoof grows more rapidly, and is on this account more ready to contract. Let us now consider that this effect of shoeing is permanent, and that to that effect of a first shoeing comes to be added that of a second, of a third, and so on, and we can readily understand how truly can be attributed the great number of contracted heels one may meet with, to erroneous shoeing.

Inaction is also an important cause, as, says Turner, the horse is by nature destined to be always in motion ; it is a condition of its health, and it is on account of this condition that in the state of nature, he is free from contracted heels. It is, on the contrary, because the domesticated horse is confined within a stall for hours and days, that his feet become contracted. We have seen colts raised without exercise, whose feet were contracted before they were shod.

Contraction of the heels is often the result of other diseases of the hoof, and of other lameness. It is commonly associated with corns, navicular disease, punctured wounds of the plantar region, accompanied with long sensitiveness of the posterior parts of the foot; after diseases of the frog; thrushes; side bones; phalangeal articular diseases; in fact, after all affections of long standing, even if they have their seat in the upper segment of the frog.

Finally, heredity has been named as one of the causes. This cannot be denied as to some breeds, principally of meridional climates, as a consequence of the organization of their feet, which are usually small. The proposition has, however, we believe, been exaggerated. This is proved by the Arabian horse, which, though accused of the vicious conformation from heredity, has according to Vallon, Crompton, and others, the most admirable conformation of his feet, when it has not been shod. It is broad, with good heels, neither too high nor too low, well open, well prominent wide frog, the external wall being strong and well developed. In horses of Caramania, Anatolia, Syria, and those of the Arabs, which are constantly in the desert, from Bagdad and Bassora to the Gulf of Persia, the foot is handsomely made, and free from contractions when it has been exempted from shoeing.

(To be continued.)

CASES FROM A NOTE-BOOK.

BY T. B. ROGERS, D. V. S.

SUCCESSFUL CÆSAREAN SECTION.

In the early part of March, 1882, I was called to attend a cow, the property of Mr. Robert Noble, of Mount Ephraim, N. J. She had sustained severe spinal injury (afterwards found to be partial fracture of body of a lumbar vertebra) and was unable to stand. She was heavy with calf, although as the bull ran loose with the cows the owner did not know when she was due to "come in," and I refrained from destroying her, hoping to save

the calf. The cow grew weaker daily and as it did not appear probable that she would calve prior to death, I ordered her killed, and she was knocked on the head in my presence; the cow being apparently dead, the owner commenced to skin her by slitting the skin down the median line; as he did so, the calf began to kick, and taking the knife, I hastily cut out the foetus. It lay apparently dead, but after the use of artificial respiration for a few seconds began to breathe. I wrapped it up in a blanket and carried it to the kitchen and rubbed it dry; the calf was a bull and was about two weeks from term, so I had little hope of saving it, but on visiting the farm to-day, (28th) I found "Cæsar" still occupying a corner of the kitchen. He is now three weeks old and is about as big as a calf at term, takes three or four quarts of milk per diem, and is the object of much curiosity in the neighborhood.

CONTRIBUTION TO THE SYMPTOMATOLOGY OF RUPTURE OF THE DIAPHRAGM.

The horse stands with the head beneath the manger, the respiration rapid, shallow and slightly oral, pulse fast, irregular, very weak, membranes cyanotic, temperature in rectum not taken, legs and ears icy cold, anorexia, but animal drinks somewhat greedily and in big gulps, *the water sounding as though poured into the cavity of the chest*. Attitude characteristic of great weakness and depression, and the near fore leg persistently pointed. No passage of fœces from time of attack until death.

Post Mortem Appearances.—Enormous amount of effusion into the thoracic cavity, with formation of exudate on the pulmonary pleura over its whole extent, lymphoid rather than fibrinous, and about 1-16 inch in thickness; lungs congested and the inferior half of left lobe collapsed apparently from pressure; it did not feel at all like lung tissue; the remaining portion of left lung was congested, as was the right, but the congestion was apparently hypostatic, not inflammatory.

The left leaf of the diaphragm was ruptured throughout almost its whole extent and there was exudate and false membranes in the abdominal cavity. A large portion of the supra-sternal cur-

vature of the colon occupied the chest. I may add that on making an aural examination of the chest, I found tympanitic resonance on the left side and moderate dullness on the right. The attack was sudden.

AN INQUIRY

INTO THE ETIOLOGY AND PATHOLOGY OF THE VENEREAL DISEASES OF MAN AND OF THE LOWER ANIMALS.

BY CHARLES F. RING, M.D.

In pursuing our investigation we shall avoid the beaten path of others, and mark out one peculiarly our own. What this will lead to only experiment can determine. Other theories have looked at but one side of the subject—that of human pathology; comparative pathology will complete the whole of it, from ours. We have carefully studied, not only the venereal diseases in the human family, but as they exist in the lower animals as well. This overlooking the analogy between these diseases of the two species will, we think, account for the failure, so far, to find a cause for one of them—syphilis—and to separate pathologically these affections. The question of identity between chancroid and chancre, in effect, is not yet settled, nor will it be to all minds until the exotic origin of syphilis be known. The burden of our argument is to prove this, and show its source. The analogy between these diseases of man and the lower animals is both in point of pathology and evolution. To illustrate: Gonorrhœa and chancroid in both species were known long before a constitutional disease like syphilis claimed attention.

It may be asked what will be gained by demonstrating the origin of syphilis. We reply, it will prevent the constitutional treatment of a local disease like chancroid—as gonorrhœa was in years past—to the patient's detriment. It will set free pathologically, scrofulosis carcinomata, and other diseases with which it has been associated of late years. It will show to the veterinarian, we think, the nature of a disease in the horse which he does not now understand. It will throw out numerous hints that point

to rich discoveries in other departments than this. Viewed from our stand-point, order and harmony come out of chaos, and the distinctions before obscure, become clearly defined.

Regarding syphilis as a modern disease, it is necessary to review all theories, for and against this view, until the closing years of the fifteenth century are reached—the period of outbreak of this disease—when we will introduce a theory to account for its appearance at just that time, and not before. We only ask of those who read this discussion to view it in the light of common sense—which Emerson says is akin to genius—and we shall be satisfied.

HISTORY.

The history of syphilis is involved in much obscurity. It is the offspring of a disease that caused much havoc near the end of the fifteenth century. That this disease in itself was not venereal is conceded by most writers. Whether it had existed before, and had ever given rise to a syphilitic disease prior to this period, is for consideration hereafter. Some writers maintain that syphilis was known to antiquity. This view is held mainly by those who, in recent times, have favored the “unity,” as against the “duality,” in syphilis. Those who defend its “duality,” i. e. that there are two poisons, one of which is constitutional, the other local, as the chancroidal, generally consider it to be a metamorphosis from leprosy, or to have been colonized from America by the crews of Columbus. Its relation to carcinomata and scrofulosis, and to diseases recorded in Biblical history—believed in by some—must prove a myth if it be shown that syphilis was unknown prior to the end of the fifteenth century. Admitted that it *was* known in Biblical times, it does not impair the argument in the least, as to whether syphilis has had a modern origin. Syphilis was not known to writers in the middle ages down to the period we have named—hence it would appear that if it had had a prior existence it had become extinct. Evidence failing, we think, to establish an ancient origin, we must regard it as a comparatively new disease.

We wish here to enroll ourself amongst the advocates of the “dualism,” (an unfortunate term), of syphilis, and maintain that

gonorrhœa and chancroid, but not syphilis, have existed from earliest antiquity. This position we can best maintain by reviewing the history of these local diseases.

The physicians of the Greeks and Romans: Hippocrates, Celsus, Ætius, Actuarius, and others, speak of ulcers and excrescences on the sexual organs, and of rhagades on the male parts, the anus and pudendum. The historians and poets mention the same, but nowhere is there the slightest evidence that a constitutional disease ever resulted therefrom.

“The writers of the middle ages,” says Renourd, “are more explicit than those of antiquity. William de Salicet, who lived in the thirteenth century, which is two hundred years before the outbreak of the syphilitic epidemic, says buboes often occurred after an impure coition, ‘quum accidet homini in virgá corruptio, propter concubitum cum fædâ muliere, aut ob aliam causam.’ Lefranc expressed himself more clearly still. The ‘ulcers on the penis,’ he says, ‘proceed either from hot pustules, which burst, or acrid humors, or from commerce with a woman who has been previously affected in the same manner.’”—[History of Medicine, 1856, p. 344.]

Jahr writes: “What seems to be strange is, that in spite of the corrosive ulcers of which all make mention, and which seem to have been known to the Greeks and Romans, not one author seems to have directed attention to the consecutive phenomena that these ulcers may be followed by others in the mouth and throat, and which would not have escaped the attention of those earlier authors any more than that of the physicians of the sixteenth century, more especially since many of these consecutive phenomena in the present chancre syphilis, do not manifest themselves at such a remote period after the primary symptoms, but that every observer must be struck by their internal pathological connection.”—[Venereal Diseases, p. 282.]

Later still, the regulations in force governing the “houses of pleasure” in London, in the years 1162 and 1430, for the suppression of venereal diseases, tell us nothing beyond the bare fact that these affections existed, and to a considerable extent; and, surely, if secondary phenomena had followed any of them, descriptions of syphilis had certainly not been wanting.

Marcy and Hunt tell us: "This disease was unknown to Greek and Roman physicians, as no allusion is made to it by any of their medical authors, historians or poets; and much discussion has taken place respecting its first introduction into Europe."

All modern authors who first described it (collected by Linsinus, Astruc and Girtannar) in the latter years of the fifteenth century, comment upon it as "*morbis novus*," "*morbis gnatus*." Peter Pinator traces the origin of the disease to the time of the conjunction of Mars, Venus, Jupiter and Mercury, A.D. 1483, at which time he thinks the disease must have originated; but Fulgosi dates it at October, 1492; Sanchez and Hensler in 1493. Others contend that it originated in Hispaniola. It is certain, however, that it was first distinctly recognized, says Dr. Simpson, of Edinburgh, during the invasion of Italy by the victorious army of Charles VIII. of France, and it first broke out extensively at Naples when the French took possession of that city in the spring of 1495. This army carried the disease with them to France, Switzerland, Germany, Flanders, etc. In 1497 it had reached Aberdeen, in Scotland. Six months later, the new disease was made subject of municipal regulation in Edinburgh.

"Gunbrecht and Brandt wrote in 1496 that the disease had already invaded France, Germany and Britain."

During a great portion of the sixteenth century it was so contagious in some parts of Europe that it was communicated by lying in the same bed, by the clothes, gloves, money, or breath of the patient. A variety of syphilis also prevailed in Canada some years ago, of so virulent a nature that it was communicated by the breath and by contact.

Professor Simpson, from a historical review of the earliest notices of syphilis on record, arrives at the following pathological opinion:

I. That syphilis was a species of disease new to Europe when it first excited the attention of physicians and historians in the last years of the fifteenth century.

II. That it is a species of disease distinct and different alike, first, from gonorrhoea; and second, from Greek leprosy, (with both of which affections it has been occasionally confounded);

for both of these maladies existed and were abundantly recognized in Britain long before the date of the introduction of syphilis.

III. When the disease first broke out it was regarded by the physicians and the public as communicable, and constantly communicated from the infected to the healthy by the employment of the clothes, vessels, baths, etc., used by those suffering from it, and by the slightest contact, or even breathing the same air with them, etc. *For many years after its outbreak, sexual intercourse does not appear to have been suspected as the mode of its propagation; the primary affections of the sexual organs were not noticed as constant symptoms.* [Italics are my own.—R.] Their attention was chiefly directed to the secondary symptoms, such as the hideous eruptions on the skin, ulcers of the throat, the exostoses and nocturnal pains in the bones, etc.

“The rapidity with which it spread over Europe led men to suppose that it travelled as an epidemic, without waiting for the slow process of communication by contact.”—[Theory and Practice, Vol. II, p. 300.]

Mr. Druitt but repeats in substance the same thing: “On the other hand,” he continues, “the opponents of its antiquity contend that, although ulcers or pustules in the genital organs and sundry discharges were not unknown, still, that neither in Celsus, nor in any other ancient writer, do we find mention that such maladies were solely the product of sexual commerce, or that they were particularly difficult to heal; or that they were frequently, or indeed ever *followed by constitutional diseases.*”

“But the most potent argument of all is this, viz.: that all at once, towards the close of the fifteenth century, whilst the French army was besieging Naples, a new and terrible disease sprung up, rebellious to every known method of treatment, attacking high and low, rich and poor, sparing neither age nor sex, consisting of ulcers on the parts of generation in both sexes, which were speedily followed by affections of the throat and nose; by corroding ulcers over the whole body; by excruciating nocturnal pains, and frequently by death. Whereas, not one word that can be construed into any similar affection is to be met with

directly stated in any writer before this period.”—[Surgery, p. 177.]

Professor Keys writes: “Syphilis was not recognized as a morbid entity until the end of the fifteenth century, at and after the period of the siege of Naples (1494–5) by Charles VIII. That then, and for a considerable time thereafter, the disease behaved with unwonted virulence, attacking all classes of society, and killing a large number of its victims. From that time to the present day, syphilis has been a subject of peculiar interest to all classes of medical men.”

[*To be continued.*]

TRICHINÆ;

Q A LECTURE DELIVERED BEFORE THE STUDENTS OF THE
AMERICAN VETERINARY COLLEGE.

BY F. S. BILLINGS, V. M.

(*Continued from page 16.*)

With reference to the disease *itself* among swine, I have the following from the “Magazine für die Jesammte Thierheilkunde” vol. 31. p. 6, 1865.

These experiments have demonstrated that the consumption of trichinous flesh by swine, with the consequent development of the embryos in their intestines, and their migration and lodgment in the muscles, may indeed cause disease, but the phenomena of the same have neither that constancy or character which will permit of looking upon them as pathognomonic, *i. e.* peculiar to this disease alone, during the life of swine so infected. All the swine which were fed with trichinous flesh became ill within a few days after its consumption. The most constant phenomena presented were as follows:

Diarrhœa, but not constant, but interrupted frequently by the passage of more solid fœces. Appetite irregular, sometimes more, sometimes less, sometimes entirely wanting. Phenomena indicative of abdominal pains were often observable, such as uneasiness, burying themselves in the straw, turgidity of the

AMERICAN VETERINARY REVIEW,

MAY, 1882.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

BY A. ZUNDEL.

(Continued from page 6.)

CONTRACTED HEELS—HOOF-BOUND.—*Continued.*

III. *Pathological Anatomy.*—We have indicated the external changes of the hoof. The tissues that have been long enclosed in the contracted foot become atrophied; molecular changes do not take place as in the normal state; they become changed in aspect, composition and properties; they become denser and more compact, and are no more able to fulfil, to the same extent, their physiological functions.

The plantar cushion is so completely pressed upon itself that the stratified structure of its fibrous layers can scarcely be distinguished, and the presence in the interstices of the yellow fibrous substance is with difficulty observed. It forms only a homogeneous mass, whitish in color, resisting in consistency, and lardaceous in aspect. The dilated bulbs which are above the cushion are also considerably diminished in size, and present, when cut through, a uniform white color, its composing substance being reduced to a single inelastic mass.

The ungual phalanx becomes deformed by degress, loses its circular shape and becomes of an elongated oval form. Its lateral faces assume a perpendicular direction; its structure is modified; its substance becomes more compact, and the small vascular openings are obliterated, while the largest are increased

in size. Its work of obliteration is specially observable at the patilobe eminences, which seem to be crushed. The lateral cartilages are also much compressed, condensed and modified in their structure.

The navicular bone is also compressed, the sheath and its support not allowing the easy play of the tendons, and it is in this way that navicular disease may follow hoof bound. But there is a specially noticeable modification in the keratogenous apparatus, which, as a consequence of the arterial obliterations, fails to receive freely and actively the necessary amount of blood. The horny secretion proper to the podophyllous tissue, the white or soft horn, is reduced; the podophyllous tissue itself is atrophied; its lamellæ are less prominent and their separations are diminished in depth; the adherence of the podophyllous or keraphyllous tissues still exists where the circulation of the blood is not interrupted, but beyond, they are easily separated and often present deep excavations towards the sole.

If hoof bound advances slowly, the same atrophy of the sub-horny tissues takes place. Then, however, it proceeds by degrees, the tissues accommodating themselves in size to the gradually diminishing dimensions of the cavity where they are contained, and there is an equal proportion between the size of the hoof and the volume of the tissues enclosed in it. These being less compressed, there is less pain. In this manner an excessive contraction of the heels may sometimes exist without marked lameness.

IV. *Prognosis*.—This is the more serious as the disease is more developed. Total hoof bound is excessively tenacious, and resists the best curative measures, though if there is only a slight contraction at the heels, it is generally amenable to judicious treatment. The duration of the disease is an important factor in the question of the success of the treatment, as the condition of the os coronæ, os pedis, navicular bone, sesamoid sheath, plantar cushion and the atrophy of the keratogenous membranes have all to be taken into consideration.

The age of the diseased animal and any existing complications are, of course, circumstances which influence the prognosis in an important degree.

V. *Etiology*.—Hoof bound, says H. Bouley, is not a simple fact, produced by a unique cause acting always in the same manner; it is, on the contrary, a very complex one, to the production of which a great number of causes of various character and intensity contribute with simultaneous or successive effects.

The hygrometric condition of the horny substance is a principal feature in the etiology of the disease. It is when the hoof loses by evaporation the moisture which it should contain that it contracts as all organic substances do, and its flexibility returns when by a sufficiently long immersion in a liquid, the moisture that it has lost is recovered. Observation proves that this disease often finds the conditions of its presence in circumstances which induce dryness in the part. In such cases the foot has the property of retracting, to an extreme degree, especially towards its posterior extremity, where the frog is situated, constituted as it is of a softer and more depressible substance than that of the wall. The same phenomenon takes place in the living structure that is observed upon the hoofs of dead feet; a phenomenon which cannot even be prevented by filling their cavity with plaster. During life the hoof is constantly permeated by a current of fluids which penetrate it from its depth to the surface. It is the serous fluid that the hoof is continually absorbing by the hygroscopic properties common in living tissues, which counterbalance the tendency of the foot to retract upon itself and keep it in the dimensions required for the perfect reception of the parts it covers. So long as the equilibrium is preserved between the loss of this fluid by evaporation and its renewal through the perspiration of the keratogenous apparatus, the hoof preserves its physiological form; but if this equilibrium is destroyed by an excess of the loss, then the condition occurs for the retraction of the hoof and the infliction upon the parts underneath of an excessive and painful pressure.

This explains why, as proved by observation, lameness in general and that of contracted heels especially, are more frequent in warm than in moist seasons. Long standing in the stable is also an efficient producing cause. The feet become dry upon a constantly dry bedding, and here also the influence of inaction must be taken into account. The disease is commonly found in stabu-

lation, but seldom when the animal is in pasture; and when it has existed it often disappears in the latter circumstances.

The alternation of dampness and dryness also influences perhaps more the genesis of the disease than dryness alone. A foot too much impregnated with dampness, which is afterwards left to the air, becomes harder than a normal one placed in the same conditions. It retracts easier also. It is probable that the water, in softening the superficial layers of the wall, also renders the evaporation of the liquids of its deep parts more active. In the ordinary condition of the foot, the evaporation is diminished by the impermeability of the external hoof, which it owes to its density; but where this hoof is softened by maceration, its fibres, partly disintegrated by the dissolution of the glutinous substance which keeps them as a compact mass, allow the air to penetrate in their interspaces; air which dries them to a certain depth; hence a proportionate movement of retraction of the entire hoof upon itself. This evil effect of an excess of moisture explains how it is that poultices or other moist applications which horse attendants abuse so frequently, may give rise to results entirely opposite to the one in view, and why the hoof becomes dry and brittle, if not contracted. These topical applications take off from the cortical layer of the foot its protecting varnish, and expose it to lose its water of growth.

Some of the practices in shoeing contribute also to the desiccation of the hoof; such is principally that which consists in rasping the wall from the coronary band to the plantar border; as also the too long continued contact of a hot shoe with the foot. Shoeing itself promotes the same result, as, protected by a shoe, the foot no longer wears normally and grows beyond normal limits. The mass of hoof, which, in the process of growth, has gone beyond the inferior limits of the podophyllous fissures, is no longer in contact with the living parts beneath, and they cease to be impregnated by the fluids which are thus constantly allowed to evaporate. It then dries up by evaporation and becomes hard, and retracts upon itself in such a manner that the circumference of the foot in the lateral diameter diminishes more or less, especially posteriorly, and thus forces the incurvations of the sole and of the bars (H. Bouley). If a horse remains shod

conjunctivæ. These phenomena, either singly or collectively, may come to pass in swine or any other animal, entirely aside from any anticipatory trichin-infection.

The above mentioned phenomena must be looked upon as evidence of the irritation caused by the parasite in the intestinal mucosa, hence, swine dying or killed at this stage of the invasion would present the same pathological phenomena as those suffering from an intestinal catarrh of like grade. As the migration of the embryonal trichinæ gradually ceases, so do these abdominal phenomena relax in severity and finally disappear, unless a second invasion takes place. In their place appear phenomena more or less indicative of a disturbance of the motor functions. If these do not lead to death, they in their turn gradually cease with the encapsulation of the trichinæ.

Although the presence of trichinæ in the intestinal tract produces the phenomena of catarrh, yet in these experimental animals—swine—it was impossible to find any embryos among the fœces passed by them. This, by no means, excludes the possibility of finding them in such masses by others, yet the irritation caused by the trichinæ is so great, and the secretion of mucus so profuse, that the intestinal canal is lined by a viscid coating of sufficient volume to protect the majority of the trichinæ from the movements of the chymus and fœces in their passage.

Further, the accidental trichin-invasions to which swine are subjected in their ordinary course of life, are not generally accompanied by the introduction of such masses of trichinæ into the organism as takes place by experimental feeding. Hence, the catarrh produced would be by no means so profuse as by intentional feeding.

In none of the experimental swine, and at no time during the course of the experiments, were phenomena to be seen at all analogous to the more or less extensive subcutaneous œdema which comes to pass in man when infected with the parasites in question, and which serves essentially to support the diagnosis. The experiments of Prof. Leisering, the cultivated anatomist of the Royal Veterinary Institute at Dresden, entirely agree with the above. He says, "Bericht wher das Veterinair wesen in König-

reich Sachsen," 1862, p. 118. "One cannot speak of a trichin-disease in swine, which characterizes itself by distinct and pathognomonic symptoms. In this relation the trichinæ deport themselves in a manner similar to the cysticerci, measles."

Leisering made some feeding experiments with trichinous flesh in a horse, but the most exact examination failed in discovering a single representative of the parasites in the flesh. It may also be casually remarked that fowls present some unknown hindrance to the invasion of their flesh by the embryonal trichinæ. I made quite a number of experiments with hens, feeding them for two weeks almost entirely on pork profusely infected, but was unable to find a single trichinæ in their muscles. Further research must endeavor to discover the cause of this singular immunity; whether it is that the triturative power of the gizzard is sufficient to kill the trichinæ, or what it is, which prevents invasion; further, are all varieties of domestic fowls thus immune to invasion? How do swine become infected under the natural order of things, or in other words, from whence do they derive the trichinæ?

That the trichinæ gain access to the organism by means of the mouth and alimentary canal is placed beyond all doubt.

Notwithstanding the apparent negative of the above quoted Berlin experiments, we have the very highest other authorities affirming from positive observation, that intestinal and embryonal trichinæ *do* leave the autositic organism with the fœces.

Leuckart says, vol. II, p 557, "As the sexually matured trichinæ are accumulated in great numbers in the intestines, and as the irritation caused by them leads to the development of a more or less intensive diarrhœa, so is it evident that the young must be frequently passed with the fœces. And not only free embryos, but also pregnant females are subject to this destiny, which has been sufficiently attested by such observers as Luckart, Vogel, Kuhn, Gerlach and others." "It is this form of migration, which, under favorable circumstances, also contributes to the distribution of the trichinæ," p. 558. "In fact, Haubner and Gerlach mention cases where they intentionally caused the infection of young (non-infected) swine by causing them to cohabit with known trichin-infected oves."

Such embryos and pregnant females become mixed with the manure and bedding of the hog pen and may be taken up by other swine, or even by the original autosite, thereby leading to a second invasion induced by itself.

By the above, however, we have a course of invasion by which the swine themselves are the sole factors.

Is there no other factor (or factors) in the question?

We have previously remarked that wild swine have been found infected with trichinæ, also that cats, dogs, foxes, the marmot and other wild animals serve as autosites to them.

*“ Dr. Clendenin, of Ostend, examined a pike caught in the North Sea, and found it infected with trichinæ. He conjectured that the *fish* must have fed from trichin-infected refuse in the harbor of Ostend and by this means have become infected.”

But of all the animals by which these parasites have been found, none have that interest, aside from the swine, to the hygienist and experimental pathologist, which is enjoyed by the *rat*, on account of a hypothetical ætiological connection between the trichinæ, which, it has been found, infect them in large numbers, and those of swine.

Leisering is the originator of this hypothesis. The following figures sufficiently prove that the rat lodges trichinæ in its muscles, even to a larger extent than any other animal which has as yet been subjected to examination. Of 704 rats from different parts of Germany, which have been subjected to examination, 59 were found trichinous,—8.3 per cent.

										Per cent.
Of 208 rats from German knackers, 46 found trich-										
inous	-	-	-	-	-	-	-	-	-	22.1
224	“	“	“	slaughter	houses,	12	found			
trichinous	-	-	-	-	-	-	-	-	-	6.00
272	“	“	“	other	places,	1	found	trich-		
inous	-	-	-	-	-	-	-	-	-	0.3
326	“	“	“	“	39	“				11.0

Of 51 rats caught at the knacker establishment at Spectacle Island, Boston Harbor, 30 were found by myself to be trichinous, the tongues having been used for examination. The proprietor

*Archiv fur Thierheilkunde Berlin, vol. 5, p. 147.

of this establishment kindly gave me an opportunity of examining 28 hogs which had been kept and fattened by them at the island mentioned. None were found trichinous. These hogs received no city swill of any kind. What flesh they received had been subjected to the heat necessary to extract the fats; otherwise they received nothing but corn meal. Forty rats caught at one of the large packing houses near Boston, were all found trichinous. Of 50 rats caught for me at different stables in the city of Boston, where no hogs had been kept, but *six* were found trichinous.

This rat theory, *i. e.*, that the swine become infected by hunting, killing, and eating rats which are trichinous, is open to most serious doubt, although it has able defenders.

Conversation with hog keepers has revealed the same difference of opinion, some saying they have seen swine hunt and kill rats, while others assert that such a thing never takes place, although they admit that a *hungry* hog would undoubtedly eat a rat if it had it.

Admitting that hogs may become infected from eating a trichinous rat we have still before us the questions: 1st. Is this the only source from which swine become infected? 2d. Is there no common source from which not only they, but wild animals, especially omnivora and carnivora, may become infected?

As according to German, and other American observations, as well as my own, American pork, and according to my very limited examinations, American rats, are much more infected with trichinæ than similar animals in Germany; it seems as if here in America, were the place to decide these important questions.

Important Questions! Not only are they of the utmost importance, from the fact that our own people frequently become infected, but also that people of other countries have been, and still will be infected with trichinæ from American pork; but also, the questions have a national importance from an economical point of view, for already a serious alarm is created, and pork growers and continental papers are feeding the flame, which, unless we ourselves awake to the necessity, may drive American pork largely out of continental markets.

To be continued.

EDITORIAL.

REGULATION OF VETERINARY PRACTICE IN NEW YORK STATE.

For several years past various attempts have been made by members of the veterinary profession, and by gentlemen interested in the welfare of our domestic animals, to obtain from the Legislature in Albany, a law which would regulate the practice of veterinary medicine in the State, but in every instance the effort has proved abortive. Why such a law has not been enacted may be difficult to say. Whether the profession has not been strong enough to overcome the opposition that the bill met from other parties; or, because the bill was deficient; or because of its asking too much; or, because it interfered with the rights of private individuals; or whatever may have been the cause of failure, we are not informed. Nevertheless, as veterinary science is making its way little by little, and as its influence and usefulness are becoming by degrees better appreciated, the need of such regulation is felt, and though defeated, those who have interested themselves in the subject are likely to try again, if we may judge by the information which has been received through the newspapers.

It is evident, however, that the members of the veterinary profession, who have at heart the welfare of their noble pursuit, must keep a close watch on what may be attempted at Albany, under the pretext of regulating the practice of veterinary medicine. A bill which was reported some time ago as having been presented, and which we understand has been read twice in the Senate, referred to the Committee on Public Health, reported favorably from that Committee, and referred to the Committee of the Whole, is amongst the dangers which threaten the elevation of the profession in the State, and one we hope our Legislature will reject, as the means of organizing empiricism and quackery for ever in the State of New York, as every one can satisfy himself by the reading of sections of the bill. Far from being an act to regulate the practice of veterinary surgeons, and for the better protection and for the more humane and scientific treatment of

dumb animals, if passed, it would prove the most dangerous blow that the advancement of veterinary science could receive, and the clearest recognition of ignorance and quackery.

One of our correspondents sends us a project of a bill which is framed much after a similar one passed in favor of the dentists practising in the State, and on close examination, it will be found that the ideas which it carries are sufficiently liberal to almost encourage every one to support its passage. Being in favor of liberal offers toward the self-made men who are engaged as veterinarians, we would be well disposed toward the passage of a bill similar to the dental act. We have, however, a strong objection to the admission to regular standing of all men who have been engaged in practice, merely because they have been so for a number of years, and to grant them that recognition without some evidence of their being worthy of it. We know that there are in the State of New York as well as in others in the Union, self-made men who are fully deserving of a professional recognition. But many are practising as veterinarians who are ignorant of the slightest requirement of the veterinary surgeon. But a few days ago one of these men prescribed for two horses a dose of physic, the effect of which can be readily understood by looking at the prescriptions:

R—Calomel,	-	-	-	-	3 iii.
Ol Ricini,	-	-	-	-	Oi.
Mag. Sulph,	-	-	-	-	3 viii.
Pulv. Aloes Barb.,-	-	-	-	-	3 iv.

M. T.—Use as directed.

Are we to accept this man or his like into the ranks of the veterinarians? Is he to be allowed to use our title while exhibiting such an amount of ignorance? It seems to us that it would be branding our noble profession as one of ignorance, if such individuals are to be allowed to continue to go on in their cruel practice under the shadow of proper legislation. Let us have the power to admit into our ranks good men, but not every one. It seems to us that in any bill which may be presented to the Legislature, there ought to be a clause by which the ability and

knowledge of self-made men ought to be made evident by proper credentials, or by examination before a Board appointed for that purpose. The subject interests many of us, and we would be pleased to receive and to publish any communications on the subject which our readers may see fit to send us.

TERRITORIAL VETERINARIAN IN WYOMING.

We some time since noticed efforts which had been made in the Legislatures of several of the States to establish the position of State Veterinarian, and gladly announced the result obtained in the State of Illinois, when our friend and co-editor, Dr. Paaren, received the appointment for that great State.

The prevailing contagious lung disease of bovines in the eastern States, has been no doubt, the exciting cause of these movements in the west, and it was evident that the example of Illinois would soon be followed by other breeding and stock raising States. To-day we publish a bill which has passed the Legislature of Wyoming Territory, by which the position of Territorial Veterinarian is created. To Mr. Th. Sturgis is due the passage of the act, and to him the veterinary profession is indebted for the great step forward, which we hope will be followed by similar enactments in other States.

VENEREAL DISEASES OF MAN AND THE LOWER ANIMALS.

We begin in this issue the publication of a long article, contributed by Dr. C. Ring, of Ohio, on the subject of the etiology and philosophy of the venereal diseases of man and the lower animals. The subject has already been pretty extensively exhausted, and the majority of pathologists are satisfied that the two diseases are widely different from each other. Dr. Ring, who is a hard student and a deep investigator, believes in the theory that glanders and syphilis are but one disease, more or less modified according to the peculiar condition of the various individuals in which it develops itself, and he is quite anxious to have the subject presented to the veterinarians of America, and to

submit it for their appreciation and criticism. We regret that the length of the subject will not allow it to be published in a single number, though we will endeavor to have it complete before our readers as soon as possible.

NEW AUSTRALIAN VETERINARY JOURNAL.

A new veterinary journal, edited by three members of the profession, fellows and members of the Royal College of Veterinarian Surgeons, has been started in Australia, under the name of *The Australian Veterinary Journal*. The paper will be issued monthly, and the appearance and contents of the first number justifies us in believing that it will be successful in its career, a result for which it may be certain of our sincere wishes.

LEGISLATION NEEDED FOR THE PREVENTION OF PLEURO-PNEUMONIA.

The pleuro-pneumonia controversy which is now attracting so much attention in Pennsylvania is not without a lesson. It leads us to repeat what we have already said, *i. e.*, that the measures adopted by the different States are wholly ineffective in eradicating this disease from our midst. So long as the laws are so short-sighted and imperfect as at present, we can hope for nothing, and we are forced to the conclusion above stated.

There are but two things for us as veterinarians to do. The first (and it is what we most earnestly hope for) is to secure legislation, by the General Government and by the different States, by means of which this pestilence may be "*stamped out*," and second, to *acknowledge the permanent footing of contagious pleuro-pneumonia in America*, and endeavor to reduce the annual losses from the same by the practice of inoculation.

What have been the chief obstacles in the way of our having had efficient legislation in reference to this disease?

First, the fact that cattle owners themselves have not possessed an accurate knowledge of the character of the disease, the losses entailed and its mode of spreading; second, the resistance

that has been offered by a class of men calling themselves veterinarians, who have known even less than the owners of cattle or who have been influenced by cupidity and an utter disregard of the cattle interests both at home and abroad.

What can we say of this class of men? It can scarcely be possible that they do not *know* that the "lung-plague" is contagious. This fact is universally taught by every writer who is entitled to an opinion, and is abundantly proven in *every* outbreak of this malady that has ever occurred on this continent. There seems to be but one inference, and dearly will it cost a country that listens to men who are so ignorant that they cannot learn, or so selfish that they will not.

COMPARATIVE PATHOLOGY.

UPON A PARASITIC TUBERCULOUS OF DOG, AND UPON THE PATHOGENY OF THE TUBERCULOUS FOLLICLE.

BY M. LANLAINE.*

I recently had occasion to observe in the lungs of a dog the alterations produced by the eggs of a nematode, the *strongylus vasorum* (Baillet), whose identity with that of tuberculosis seems to me very interesting.

But before mentioning the facts which form the principal object of this note, I believe it is indispensable to resume, in a few words, the principal changes of migrations of the strongylus of blood vessels, such as they are known, or such as they can be supposed according to my observations.

Strongyli of blood vessels live, in their *adult state*, in the right ventricle, and the great divisions of the pulmonary artery of the dog, where they collect in more or less voluminous masses, males and females mixed together. These masses undoubtedly give rise, at the point of the vessel where they are immobilized, to an endarteritis, whose vegetations assume the form of threads or lamellæ anastomosed together, which support the parasitic ball and prevent its displacement by the current of the blood.

*Note presented by M. Bouley at l'Academie des Sciences.

It is in these central parts of the pulmonary circulation that the strongyli copulate. The fecundated eggs are transported, as they are hatched, in the finest and farthest divisions of the vascular ground of the artery where the adults are; that is, in the arterials, with a single layer of muscular fibres, or in the capillaries. It is there that they undergo the phases of their development. The embryos hatch in the interior of the arterials or of the capillaries, and soon emigrate towards the smallest bronchi, where they are found in great number under sections made for the microscope.

The presence of the embryos in the bronchi, which has not yet been mentioned, allows the legitimate supposition that they are expelled by the respiratory channels, to be afterwards accidentally introduced into the digestive apparatus of another dog. I am continuing the experimental verification of this supposition, suggested by preceding observations.

The lungs, whose vessels are filled with strongyli, are filled with grey granulations, semi-transparent, prominent, which give to the surfaces of section a rough aspect and realize, by their physical characters and their large number, all the appearances of granules. We must mention an important peculiarity relating to the localization of the parasitic granulations, which are seen to gather at the base of the pulmonary lobes, and are in smaller number going towards the apex, where they disappear almost entirely.

This localization, different from that of the lesions of tuberculosis, with the so well-known immunity of canines to spontaneous phthisis, is sufficient to prevent all mistake.

I have successively studied the histological characters of this pseudo tuberculosis, overlooked to this day, and the results I have arrived at belong to the discussion which goes on now relating to the anatomical specificity of tuberculosis, and its pathogeny. I will only mention of my observations the most general facts and the conclusions which derive from it.

The ova or embryos stopped in the fine arterials become the starting point of a *nodulous arteritis*, possessing in its structure all the characters which, since Koster, are granted to the elemen-

tary follicles of tuberculosis. Indeed, one finds in the center of each nodulous nucleus *an egg or embryo lodged in a giant cell.* This last is surrounded by a crown of epithelial cells, more or less abundant, and by an external embryoneal zone which frequently has a tendency to become fibrous.

The details already mentioned upon the habits of the strongyli, in the different stages of their development, would be sufficient to prove that the cellular group formed by the giant cell, and its surrounding of epithelial cells, have an intra-vascular origin, and proceed from the endothelium of the obliterated vessel. But again, one might quite frequently observe the continuity of this last with the follicles, and to see that its size is suddenly increased at the point where the giant cell is; it is even possible to detect the preliminary alterations which arrive to the formation of the follicle. At some distance from this the vascular endothelium is hypertrophied, and its elements project on the inside of the vessel. In the neighborhood of the follicles these proliferate, and form a column of epithelial cells in continuity with those which surround the giant cell.

There is no doubt, then, that this is a nodular arteritis, with the structure of the elementary follicle as described by Mr. Kiesser, under the name of *miliary tuberculous aneurism*, or *enveloping nodule* (nodule engainant).

I will add that the preceding phenomena, taking place most ordinarily upon vessels closed to each other, form compound nodules which would have the greatest analogy with the tuberculosis, *plexiform angioma* of the same order, if their development had taken place round blood vessels of new formation.

Evidently the vascular theory of the follicle rests on ground sufficiently important to be definitively accepted as scientific; and the above named results add a strong weight to the experiment of Mr. Martin upon experimental tuberculosis.

Spontaneous reproductions, still artificial, of the tuberculous follicle, under the influence of the ovæ of the nematode, brings us to the conclusion, already admitted, viz.: the negative of the anatomical specificity of tubercle.

Accordingly, I am brought to the following conclusions:

1st. That the specific agent of tuberculosis acts in the same manner as the ovæ of strongyli, and carries its initial action upon blood vessels in which it circulates.

2d. That the tubercular follicle is nothing else but a nodulous vascularity.

3d. That it has no anatomical specificity.

In a further communication I will present a certain number of facts to establish the mode of development, and the signification of the giant cells.

EXTRACTS FROM FOREIGN JOURNALS.

A CASE OF MATERNAL AND FŒTAL DISTOCIA.

BY MR. L. BLANCHARD.

The patient, a cow, was in labor twenty-four hours when the gentleman was called. She had already been treated by empirics and the delivery seemed to be impossible. A vaginal examination revealed first a contracted os, which was found protruding in the vagina as an ovoid mass, rugous on its surface and giving a fibrous sensation to the touch. The opening of the neck is turned downwards, and allows with difficulty the introduction of the fingers. After using the means recommended in similar cases, such as belladonna, vaginal douches, &c., &c., the division of the neck was made by the introduction of a blunt bistoury into it, and a double incision to the right and left of the median line was made. Entrance to the uterus being thus obtained, the hand detected the two fore feet of the fœtus, but the head was found twisted back over the left shoulder, its inferior face being turned upwards. With a hook, the head, after many manipulations, was brought in good position, but as by the exertions required the symphysis of the lower jaw was about to be divided, the hook was then secured on the vomer, and the head being properly secured, the calf was extracted, not without difficulty. At first the little subject seemed to be dead, but by artificial respiration he was revived. He was carefully cleaned, and an hour later was sucking its mother. The cow also made a good recovery.—*Journal de Zootechnie*.

THE TREATMENT OF LAMENESS DUE TO EMBOLISM.

BY MR. COLLIN.

The author insists upon absolute rest as the best treatment in cases of embolism, and as an evidence, mentions a case where the arterial lesions existed in the ramification of the posterior aorta; though the result was not as entirely satisfactory as it might have been, the animal having been destroyed.

The subject was a mare, which after having wintered to the 23d of February, 1880, was put to work on that day, and after half an hour was suddenly taken lame in the left hind leg. When returned to the stable she dropped down, and after several hours was found apparently perfectly well. Three days after, she was put to work again, with the return of the same symptoms and the general manifestations accompanying embolisms. Mr. Collin being then called, several hours afterwards put the animal to exercise and the lameness returned after a few minutes. The diagnosis of embolism being made, the following treatment was ordered: daily exercise of an hour first, to be gradually increased, dry friction over the hind parts of the animal. Improvement soon became manifest, and a month later the animal was able to work for three or four hours in succession. For some reason, however, the mare, after the 1st of June, was allowed to remain in the stable for twenty-eight days without working, and when she was put in harness the lameness returned in a short time, as bad as ever. She was then destroyed, and at the post mortem the posterior aorta and the external iliacs were found diseased, and containing clots of blood, of a regular form, and loosely adherent to the external coat of the artery. The right iliac was entirely obliterated, the left most completely so. The femorals were also more or less obliterated. The clots in these blood vessels presented different degrees of organization, and in some resolution seemed to have been going on when the animal was under treatment, but was stopped as soon as the animal was put to permanent immobility.—*Journal de Zootechnie*.

AN INTERESTING CASE OF LATENT GLANDERS.

BY MR. A. BARRIER.

This is a case in which the disease had not been detected for a period of about twenty-two months. The subject an Anglo-Norman mare, seven years old. She was in 1878 in a regiment of cavalry where glanders existed. Six months later she was sold, and presented then nothing abnormal but a slight cough. This lasted for twenty-two months, when she was treated for a capped hock of the left leg, which resisted all forms of treatment for sixteen days. At that time she showed all the signs of health. The capped hock was punctured with a red hot wire, with the introduction of a seton. Some iodine injections were made in the sac and a coat of plaster of paris mixed with sulphate of iron and water applied on the outside. Several days after, the tumor had disappeared. On the 16th of January she refused her food, and became feverish. Fearing an attack of pneumonia, she was treated accordingly, but without any change in her condition. Ten days later, a tumor of the size of a hen's egg, hard, painful and slightly œdematous, appeared in the left jugular groove. Four days later, the left fore fetlock had a small circular wound, of bad aspect, greyish, bleeding and covered with a scab which was adherent to the hairs. Close observation revealed another little sore on the right flank. The following day a second sore appeared on the left fore leg. A dose of aloes hastened the development of the disease, and the symptoms following its effects were such that no more doubt could exist as to the nature of the disease, and the animal was destroyed.

The skin then showed the lesions met with in farcy. The lymphatic glands were swollen, infiltrated and in some cases purulent. In the nasal cavities no ulcerations were found on the mucous membrane, but the inferior maxillary sinus was filled with pus and its mucous membrane thickened and congested. In the larynx and trachea the mucous membrane was thickened and infiltrated. In the thorax the lungs irregularly bosselated by mucous tumors, hard, yellowish and of various sizes, more abundant on the dorsal border, where they were largest. They were not

purulent, but allowed the escape of a few drops of serosity. Numerous small tubercles were also found, some of recent, others of old formation. The bronchial ganglions were hypertrophied, indurated, fibrous in consistency and slightly purulent.—*Archives Veterinaire*.

OBSERVATIONS TO ASSIST THE DIAGNOSIS OF TRAUMATIC PERICARDITIS OF BOVINES.

BY M. BONNIGAL.

1st case.—A cow, four years old, was sick for three weeks; was treated successively for indigestion, enteritis and then general anæmia. In her history it was stated that she had first been tympanitic, had lost her appetite, then lost her milk, and was becoming very weak. She had two large swellings, one at the dewlap and the other at the base of the tongue. When seen, the general symptoms excluded abdominal troubles. The swelling and condition of the circulation indicated trouble in that apparatus. The swellings were neither warm nor painful; the venous pulse was well marked at the dilated jugulars. Percussion revealed nothing in the thorax, but auscultation showed absence of normal sounds and singular actions of the heart. When the animal was exercised for a minute only, dyspnœa was threatening and the frequency of the beatings of the heart increased. It was a pericarditis, which was believed to be traumatic, in taking into consideration the symptoms of the animal when first taken sick. A needle was said to be the cause of it. The animal was destroyed, and at the post mortem a fistulous tract, running from the rumen to the right auricle was found, with a large needle in it. The pericardium was strongly indurated on its two coats. Its cavity and the size of the heart were double their normal conditions. The sac was filled with yellow, thick, purulent fluid.

2nd case.—This case has about the same history; considerable swelling on the dewlap; the jugulars dilated; venous pulse well marked; no dyspnœa after exercise. Percussion, negative; auscultation revealed the beatings of the heart to be very weak, rapid and irregular. Same diagnosis is made and at the post mortem a knitting needle was found floating in the cavity of the

pericardium, in the fluid which it contained. All the lesions of extensive pericarditis existed.

Among the conclusions the author states that pericarditis of bovine, easily recognized, can be considered traumatic when it is preceded by abdominal disturbance.—*Archives Veterinaires*.

PLEURO-PNEUMONIA CONTROVERSY.

An important arbitration which is now attracting considerable attention from veterinarians and agriculturists, and which merits the attention of all classes of men, from its importance, is progressing in Delaware county, Pennsylvania. The case in its primary form was one for damages. The plaintiff, Mr. Alonzo Parker, having sued the defendant, Mr. Maris Worrall, for the same upon the ground that he (Worrall) disobeyed the quarantine orders of the laws of the State regarding pleuro-pneumonia, which the defendant then had upon his farm.

Mr. Worrall, through his counsel, has chosen the ground of contest that the disease is not contagious, and the case has resolved itself into this one question, upon which, in the judgment of all true scientific men, there is but one decision, and that is in the affirmative.

Weekly meetings have been held before three arbitrators, one of whom is an agriculturist, another a merchant, while the third is a Justice of the Peace. They are all intelligent and well educated men, and their decision is awaited with much anxiety, as one of our veterinary inspectors here has said that the responsibility of the prevalence of this much-dreaded disease in Delaware county has arisen from the fact that certain men, who term themselves veterinary surgeons, have attempted to treat and cure the disease.

The history of these cases carries us back to November, 1880, when pleuro-pneumonia made its appearance on Mr. Worrall's farm; and soon, from the lack of prompt measures of extermination, the farmer's entire flock became affected, eleven of which were afterward destroyed by the State authorities, and the owner

compensated for the same. At this time the usual quarantine orders were issued to Mr. Worrall, but they were not obeyed; he allowing his cattle to run in a field that joined Mr. Parker's farm. Again, one of Mr. W's cows died in a stream that passes through both farms; that the animal was removed from the water and buried about one foot deep on the banks of the stream, where afterwards it became exposed by the scratching of dogs, and, at times, I believe, the waters of the stream washed over it. Likewise, when it rained, the washings would sink into the stream. Mr. Worrall's cattle drank from this stream, as did those of Mr. Parker, and several other farmers lower down along its course, but none but Mr. Parker's contracted the disease.

Mr. Worrall's cattle contracted the disease, it is supposed, from an animal that was purchased of a Baltimore drover.

These facts have been elicited through a number of witnesses on both sides, who have already been examined.

Mr. Broomal, counsel for the defendant, has termed the commission here for suppressing pleuro-pneumonia, the "Stalwarts, or Cattle-Killing Commission,"—or all those who consider the best method of stamping out a disease is by destroying those affected.

Among those who have been called as experts are Dr. J. W. Gadsden, one of the U. S. Veterinary Inspectors, Dr. Bridge, a State Inspector of Penna.; Dr. McCart and Dr. Birch, members of the faculty of the Penna. Veterinary College (an institution that the examination proved only existed in name); Dr. Ward B. Rowland, of the American Veterinary College; Dr. Young and Dr. Chom. Doctors Gadsden, Bridge and Rowland contended that this disease is contagious, the former in a very elaborate manner, by plates and diagrams of sections of diseased lungs, and quoting from the highest veterinary writers on both continents. Dr. McCart, in his testimony, as well as Drs. Young and Birch, acknowledged the unanimous opinion of its contagiousness by all authorities, they only quoting one writer who did not. This writer proved to be Dr. McClure, formerly connected with the Philadelphia Veterinary College. Drs. McCart, Birch, Young and Chom all believed that this disease arose from badly venti-

lated, lighted and drained stables, and from lack of proper care and attention. Dr. Young's testimony varied very much, he believing it contagious in certain stages of the disease, but *curable*. His cross-examination proved him to have occupied both sides of the fence.

Dr. Chom advocated its non-contagiousness, and, quoting from his testimony, I give you a peculiar and original theory he sets forth. He says: "The way disease spreads from herd to herd is something like this: along that creek there were certain grasses and weeds that had grown the season before, and there being a great deal of snow in the winter, it kept it down and killed it. In the spring, where it rotted, the gas or scent that went up from it would poison the blood, and what would produce the disease in one lot of cows on that creek would produce it in another, especially if the herd had been kept in a barn not very healthy."

At the last meeting, Sec'y Edge, of the State Board of Agriculture, was examined. His testimony was principally in reference to the laws of our State in regard to this disease, which he acknowledged to be very far from what they should be.

The case still continues its meetings, but promises to soon draw to a close, when I shall be pleased to inform your readers of the verdict.

Very truly yours.

W. HORACE HOSKINS, D. V. S.

MUSEUM PRESENTATION.

SPECIMEN PRESENTED TO THE A. V. C., BY DR. JOHN REYNOLD,
of Sheperdstown, Md.

FRACTURE OF THE NECK OF THE FEMUR.

The incomplete history of the case is about as follows:

A cow had received a fracture of the off hind leg; she had recovered and had given birth to several calves without any trouble.

The specimen consists in the pelvie bones of the cow, which

are healthy, with a fracture of the right femur, just below the articular head of the bone, at the neck. The head is forced into the acetabulum, and has caused an elevation of the inner plate of the ilium, part of which, however, is destroyed, and allows the head of the femur to form the anterior border of the obturator foramen. On looking at the interior face of the pelvis, a portion of the cotyloid cavity is seen, about $\frac{1}{3}$ of it; the remaining is filled by the head of the femur, which has slipped outside of it, backwards. The head is firmly secured by bony deposits, and a false articular surface, irregular in shape but smooth, is situated at its inferior face, and must have been articulated with the body of bone. The obturator foramen is much reduced, its antero-external border presenting irregular bony deposits, and showing the round and smooth surface of the head of the femur.

SANITARY LEGISLATION.

A BILL FOR AN ACT TO SUPPRESS AND PREVENT THE DISSEMINATION OF CONTAGIOUS AND INFECTIOUS DISEASES AMONG DOMESTIC ANIMALS.

Introduced in the Council by MR. THOMAS STURGIS, of Cheyenne. Passed by the 7th Legislative Assembly of Wyoming Territory, March, 1882.

Be it enacted by the Council and House of Representatives of the Territory of Wyoming :

SECTION 1. That the Governor of the Territory is hereby authorized to nominate, which nomination may be made upon the recommendation of the Stock Growers' Association of the Territory, and by the advice and consent of the Council, appoint (without necessary delay after the passage of this act) a competent veterinary surgeon, who shall be known as the Territorial Veterinarian, and on entering on his duties shall take an oath to well and truly perform his duties as provided by law.

SEC. 2. The duties of said veterinarian shall be as follows: To investigate any and all cases of contagious and infectious disease among domestic animals in this Territory, of which he may have knowledge or which may be brought to his notice by any

resident in the locality where such disease exists. And it shall also be his duty in the absence of any specific information, to make visits of inspection to any locality where he may have reason to suspect that there is contagious or infectious disease and to inspect under the regulations of this act all domestic animals that may arrive at any railroad station in this territory, when these animals are such as to warrant the presumption that they are intended to remain in the territory, and are to be, or may be, used for breeding purposes therein. And it shall be the duty of the owner, or in his absence, of the person in charge of such animals so arriving, to notify the Territorial Veterinarian without delay, and not to allow such animals or any of them to leave the place of arrival until they shall have been examined by the Veterinarian, and his certificate obtained that all are free from disease. And no animal pronounced unsound by the Veterinarian shall be turned loose, removed or permitted to escape, but shall be held subject to the order of the Veterinarian. Any person failing to comply with this provision shall be deemed guilty of a misdemeanor, and upon conviction shall be fined not less than fifty nor more than five hundred dollars for each offense.

SEC. 3. In all cases of contagious or infectious disease among domestic animals in this territory, the Veterinarian shall have authority to order the quarantine of the infected premises, and in case such disease shall become epidemic in any locality in this territory, the Veterinarian shall immediately notify the Governor of the Territory, who shall thereupon issue his proclamation forbidding any animal of the kind among which said epidemic exists to be transferred from said locality without a certificate from the Veterinarian, showing such animal to be healthy.

SEC. 4. In any case of epidemic disease where premises have been previously quarantined by the Territorial Veterinarian, as before provided, he is further authorized and empowered, when in his judgment necessary, to order the slaughter of any or of all diseased animals upon said premises and of all animals that have been exposed to contagion or infection, under the following restrictions: Said order shall be a written one and shall be made in duplicate and there shall be a distinct order and duplicate for each

owner of the animals condemned, the original of each order to be filed with the Governor, and the duplicate given to said owner. And, further, before slaughtering any animal or animals that have been exposed only and do not show disease, the Veterinarian shall call in consultation with him two respectable practicing veterinarians or physicians, residents of the territory, or if this be impossible, then two reputable and well-known stock owners, residents of the territory, and shall have the written endorsement upon his order of at least one of said consulting physicians or stock owners, stating that such action is necessary, and the consent of the owner or persons in charge, before such animal or animals shall be slaughtered.

SEC. 5. Whenever, as herein provided, the Territorial Veterinarian shall order the slaughter of one or more animals, he shall at the time of making such order notify in writing the nearest Justice of the Peace, who shall thereupon summon three disinterested citizens (who shall be stock owners) of the neighborhood to act as appraisers of the value of such animals. Said appraisers, before entering upon the discharge of their duties, shall be sworn to make a true and faithful appraisal without prejudice or favor. They shall, after making their appraisal, return certified copies of their valuation, a separate one being made for each owner, together with an accurate description of each animal slaughtered (giving all brands, earmarks, wattles, age, sex and class as to whether American, half-breed or Texas) to the Justice of the Peace by whom they were summoned, who shall, after entering the same upon his record and making an endorsement upon each, showing it to have been properly recorded, return it, together with the duplicate order of the Veterinarian, to the person or persons owning the animals slaughtered, and it shall be the duty of the Territorial Veterinarian to superintend the slaughter of such animals as may be condemned, and also the destruction of the carcass, which latter shall be by burning to ashes, and shall include every part of the animal and hide, and also excrement as far as possible. He shall cause the said slaughter and burning to be done as cheaply as practicable, and shall pay the expense from the contingent fund hereinafter provided, taking proper vouchers for the same.

SEC. 6. The Territorial Veterinarian shall make a report at the end of every year to the Governor, of all matters connected with his work, and the Governor shall transmit to the several boards of County Commissioners such parts of said reports as may be of general interest to the breeders of live stock. The Governor shall also give information in writing as rapidly as he obtains it to the various boards of County Commissioners, of each cause of suspicion or first eruption of disease in each locality, its course and the measures adopted to check it.

SEC. 7. Whenever the Governor of the Territory shall have good reason to believe that any disease covered by this act has become epidemic in certain localities in another State or Territory, or that conditions exist which render domestic animals liable to convey disease, he shall thereupon, by proclamation, schedule such localities and prohibit the inportation from them of any live stock of the kind diseased into this Territory except under such restrictions as he may deem proper. Any corporation or any person or persons, who, after the publishing of such proclamation, shall knowingly receive in charge any such animal or animals from any one of said prohibited districts, and transport or convey the same within the limits of this Territory, shall be deemed guilty of a misdemeanor, and upon conviction, fined not less than \$100 nor more than \$10,000 for each and every offense, and shall further become liable for any and all damages and loss that may be sustained by any person or persons by reason of the importation or transportation of such prohibited animals.

SEC. 8. It shall be the duty of any person or persons who shall have or suspect that there is upon his or their premises, any case of contagious or infectious disease among domestic animals, to immediately report the same to the Territorial Veterinarian; and a failure so to do, or any attempt to conceal the existence of such disease, or to wilfully or maliciously obstruct or resist the said Veterinarian in the discharge of his duty as hereinbefore set forth, shall be deemed a misdemeanor, and any person or persons who shall be convicted of any of the above acts or omissions shall be fined not less than \$50 nor more than \$500 for each and every such offense, shall forfeit all claims to indemnity for loss from

the Territory, and upon conviction a second time, shall, in addition to the above-named fine, be imprisoned for a term not less than thirty days, nor more than six months.

SEC. 9. The following regulations shall be observed in all cases of disease covered by this act. First, It shall be unlawful to sell, give away, or in any manner part with any animal affected with or suspected of contagious or infectious disease; and in the case of any animal that may be known to have been affected with or exposed to any such disease within one year prior to such disposal, due notice of the fact shall be given in writing to the party receiving the animal. Second, It shall be unlawful to kill for butcher purposes any such animal, to sell, give away or use any part of it or its milk, or to remove any part of the skin. A failure to observe these provisions shall be deemed a misdemeanor, and on conviction shall be punished by a fine not less than \$100 nor exceeding \$500. It shall be the duty of the owner or person having in charge any animal affected with or suspected of any contagious or infectious disease to immediately confine the same in a safe place, isolated from other animals, and with all necessary restrictions to prevent dissemination of the disease until the arrival of the Territorial Veterinarian. The above regulations shall apply as well to animals in transit through the territory as to those resident therein, and the Territorial Veterinarian, or his duly authorized agent, shall have full authority to examine, whether in car, or yards or stables, all animals passing through the territory or any part of it, and on detection or suspicion of disease to take possession of and treat and dispose of said animals in the same manner as is prescribed for animals resident in the Territory.

SEC. 10. All claims against the Territory arising from the slaughter of animals under the provisions of this act shall, together with the order of the Veterinarian and the valuation of the appraisers in each case, be submitted to the Territorial Auditor, who shall examine them without unnecessary delay, and for each one that he finds to be equitable and entitled to indemnity under this act, shall issue his warrant on the Territorial Treasurer for the sum named in the appraisers' report.

In auditing any claim under this act it shall be the duty of the Auditor to satisfy himself that it does not come under any class for which indemnity is refused by this act, and he shall require the affidavit of the claimant to this fact, or if the claimant be not cognizant thereof, then of some reputable person who is so cognizant thereof, and also the certificate of the Veterinarian (whose duty it shall be to inform himself fully of the facts) that in his opinion the claim is legal and just, and the Auditor may, at his discretion, require further proof. The indemnity to be granted shall be two-thirds of the ordinary value of the animal as determined by the appraisers, without reference to its diminished value because of being diseased. It shall be paid to the owner upon his application and the presentation of the proofs prescribed herein; and it shall be the duty of said owner to make such application within six months of the slaughter of the animal for which payment is claimed, failing which such claim shall be barred by limitation.

These payments shall be made by the Territorial Treasurer as before provided, and for the fund provided for the purpose by this act.

The right of indemnity under this act is limited to animals destroyed by reason of the existence or suspected existence of some epizootic disease generally fatal and incurable, such as rinderpest, hoof and mouth disease, pleuro pneumonia, anthrax or Texas fever among bovines, glanders among horses, and anthrax among sheep. For the ordinary contagious diseases not in their nature fatal, such as scab and hoofrot in sheep, and epizootic influenza in horses, no indemnity shall be paid.

The right of indemnity shall not exist, and payment of such shall not be made in the following cases: First, For animals belonging to the United States. Second, For animals that are brought into the Territory contrary to the provisions of this act. Third, For animals that are found to be diseased or that are destroyed because they have been exposed to disease before or at the time of their arrival in the territory. Fourth, When an animal was previously affected by any other disease, which, from its nature and development, was incurable and necessarily fatal. Fifth,

When the owner or person in charge shall have knowingly or negligently omitted to comply with the provisions of section 8 and 9 of this act. Sixth, When the owner or claimant at the time of coming in possession of the animal, knew it to be diseased or received the notice specified in the first clause of section 9 of this act.

SEC. 11. The Territorial Veterinarian shall receive for his services the sum of \$2,500 per annum, together with his necessary traveling expenses when in performance of his duty. These payments shall be made from the fund provided by this act, the salary from the appropriation for salary and the traveling expenses from the contingent fund, upon vouchers signed and sworn to by him and approved by the Governor, separate vouchers being made for salary and expenses. No person shall be competent under this act to receive the appointment of Territorial Veterinarian who is not, at the date of his appointment, a graduate in good standing of a recognized college of veterinary surgery either in the United States, Canada or Europe. He shall hold his office for two years; he may be removed for cause by the Governor, who shall also have power to fill a vacancy. The appraisers herein provided for shall each receive five dollars for each day or part of day they may be actually employed as such, which shall be paid from their county fund upon the certificate of the justice who summoned them. The justice shall receive his ordinary fee for issuing a summons, to be paid out of the county fund. The members of the Board of Health, veterinarians, physicians or stock owners called in consultation by the Veterinarian, shall receive five dollars for each day or part of day they may be actually employed, and ten (10) cents per mile mileage for distance actually traveled, which sums shall be paid from the Veterinarian's contingent fund hereafter provided. For this and other incidental expenses connected with his work and made his duty by this act, such as traveling expenses, causing animals to be slaughtered and their carcasses burned, and disinfecting infected premises, the Veterinarian shall have at his disposal the sum of \$3,000, which shall be known as the Veterinarian contingent fund. Before entering on the discharge of his duties he shall give good and sufficient security in the sum of \$5,000 for the proper management of the same. He

shall make a sworn statement semi-annually to the Governor, supported by full vouchers of the amount disbursed; any part of the \$3,000 not used shall be covered into the Territorial treasury. No constructive mileage shall be paid under this act.

SEC. 12. The liability of the Territory for indemnity for animals destroyed under the provisions of this act in any two years is limited by, and shall in no case exceed the amount especially appropriated for that purpose and for that period.

SEC. 13. This act shall take effect from and after its passage.

AN ACT TO REGULATE THE PRACTICE OF VETERINARY MEDICINE IN
NEW YORK.

STATE OF NEW YORK, No. 187.

March 28, 1882.

IN SENATE.

Introduced by Mr. Koch—Read twice and referred to the Committee on Public Health. Reported favorably from said committee and to the Committee of the Whole.

AN ACT to regulate the practice of veterinary surgeons, and for the better protection, and for the more humane and scientific treatment of dumb animals.

The people of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. Every person who shall hereafter practice veterinary medicine and surgery shall be entitled to the possession of, or shall hold a diploma or certificate of qualification from an incorporated veterinary school, or incorporated veterinary institution or organization, and shall register said diploma or certificate, or a duly authenticated copy thereof, in the office of any County Clerk, in any county in this State, where such person shall practice veterinary medicine or surgery.

SEC. 2. Any person practicing veterinary medicine or surgery in this State, without having been duly registered as required in section one of this act shall be guilty of a misdemeanor.

SEC. 3. This act shall take effect the first day of January, eighteen hundred and eighty-three.

(Senate No. 187.)

(I. 388, G. O. 179.)

COLLEGE COMMENCEMENT.

MONTREAL VETERINARY COLLEGE.

The examinations of this institution, which have been conducted during the past two weeks, were brought to a close yesterday by a final oral examination conducted by the Board appointed by the Council of Agriculture, consisting of Messrs. Wm. Bryden, V.S., Boston, Mass.; Archibald McCormack, V.S., Beaharnois, P.Q.; Charles Levesque, V.S., Berthier-en-haut, P.Q.; C. J. Alloway, V.S., Montreal; J. A. Couture, V.S., Quebec, and Dr. Leclere, Montreal.

The distribution of prizes and diplomas took place at 4 p.m., in the presence of the professors and friends of the college. Among others we observed Messrs. D. Morrice, J. C. Baker, A. J. Somerville,—Casgrain, Prof. Osler, Dr. Jas. Bell, etc.

DR. GEO. LECLERE occupied the chair and, in the name of the Council of Agriculture, presented the diplomas. He expressed the great pleasure it gave him to be present at this the sixteenth convocation of the College, having been at the first. During the period the college had been in existence the progress had been most marked and encouraging, for, notwithstanding the fact that three sessions of six months were required, there had been a steady increase in the number, which this session was 43, and there had also been an improvement in the educational standing of the students. As one of the examiners, he was particularly satisfied with to-day's examination.

Mr. David Morrice presented the prizes, and was followed by addresses from Prof. Osler and Dr. G. O. Baudry, who addressed the students in French. The farewell remarks were made by Principal McEachran.

The following students enregistered during the past session : —Henry C. Kingman, Middleboro, Mass.; T. J. O'Connell, Salem, Mass.; C. B. Robinson, Middlemarch, Ont.; Jöseph M. Skally, Boston, Mass.; Geo. Rennicks, Huntingdon, P. Q.; W. H. Klock, Aylmer, Ont.; Jno. B. Green, Yellow Springs, Ohio; A. W. Clement, Lawrence, Mass.; Geo. W. Goetz, Buffalo, N.

Y., U. S.; J. E. Gardner, Springfield, Mass.; Fred. Torrance, B. A., Montreal; Wm. Bell, Kars, Ont.; C. D. Bancroft, Knowlton, P. Q.; A. J. Chandler, Coaticook, P. Q.; B. A. Pomeroy, Compton, P. Q.; E. P. Ball, Stanstead, P. Q.; Pierre Gadbois, Terrebonne, P. Q.; T. A. Bishop, Montreal; D. E. P. Campbell, St. Hilaire, P. Q.; Jas. Brodie, North Georgetown, P. Q.; H. Pilon, Vaudreuil, P. Q.; P. F. Labelle, St. Dorothee, P. Q.; J. A. Levis, St. Andre, P. Q.; Vilade Seguin, Regaud, P. Q.; E. C. Crevier, St. Laurent, P. Q.; C. Drouin, Montreal; O. de Maisonneuve, Terrebonne; Wilfred Wilson, St. Philippe, P. Q.; H. Quimby, Rochester, N. Y.; Jas. A. Duncan, Duncanville, Ont.; E. White, Montreal; Walter Wardle, Montreal; W. P. Robins, Montreal; J. B. Caverhill, Montreal; Alex. Glass, Philadelphia, Pa., U. S.; A. W. Mears, Ottawa, Ill., U. S.; John Henry, Jr., Charles City, Iowa; Paul Paquin, St. Andrews, P. Q.; Fred. Paquin, St. Andrews, P. Q.; Joseph Labelle, St. Rose, P. Q.; A. P. Belaire, St. Rose, P. Q.; Carey P. Drake, Montreal; E. Crundall, Geneva, N. Y.; C. L. Morin, St. Lin, P. Q.

GRADUATES.

The following gentlemen having fulfilled the requirements of the curriculum and passed the successful examinations, written and oral, in botany, chemistry, physiology, materia medica, anatomy, obstetrics and cattle pathology and practice of veterinary medicine and surgery, received the diploma of the College:—A. J. Chandler, Coaticook, Que; Walter Wardle, Montreal; Alexander Glass, Philadelphia, Pa., U. S.; Fred. Torrance, B. B. Montreal; C. B. Robinson, Middlemarch, Ont.; Joseph M. Skally, Boston, Mass.; D. E. P. Campbell, St. Hilaire, Que.; Paul Paquin, St. Andrews, Que.; Olivier de Maisonneuve, Terrebonne, Que.; Philias F. Labelle, St. Dorothee, Que.; Pierre Gadbois, Terrebonne, Que.

PASS EXAMINATIONS.

Marticulation—Wm. Bell, H. C. Kingman, Geo. Renwick, T. A. Bishop, E. P. Ball, W. H. Klock, W. P. Robbins, J. H. Oury, Jr., Vilade Seguin, I. A. Levis, A. P. Belaire, Joseph Labelle, C. L. Morin, C. P. Drake, E. Crandall.

Botany—Prof. J. W. Dawson, McGill University—E. Crundall, Henry C. Kingman, E. P. Ball and J. E. Gardner.

Chemistry—Prof. G. P. Girdwood, McGill University—Jas. Brodie, T. J. O'Connell, Wm. Bell, B. A. Pomeroy, J. A. Duncan, J. Henry, Jr., W. P. Robins, C. D. Bancroft, Geo. Goetz and W. W. Mears.

Physiology—Prof. Osler, McGill University—Jas. Brodie, Fred. Torrance, B.A., C. B. Robinson, A. W. Clement, J. A. Duncan, J. Henry, Jr., Wm. Bell, B. A. Pomeroy, T. J. O'Connell, Geo. Goetz, A. W. Mears.

Materia Medica—Dr. Jas. Bell, Veterinary College—Jas. Brodie, Wm. Bell, J. A. Duncan, A. W. Clement, T. J. O'Connell, J. Henry, Jr., B. A. Pomeroy, A. W. Mears, Geo. Goetz and W. P. Robins.

IN THE FRENCH CLASS.

Botany—Prof. Roy, Victoria College—Fred. Paquin, C. L. Morin, A. P. Belair, Joseph Labelle.

Chemistry—Prof. A. Munier, Victoria College—Fred. Paquin, C. Drouin, H. Pilon, E. C. Crevier.

Physiology—Prof. G. O. Beaudry, Victoria College—Fred. Paquin, C. Drouin, H. Pilon, E. C. Crevier.

PRIZES.

The following prizes were awarded for merit :

In the English Class—For the best general examination, silver medal, the gift of the Council of Agriculture, awarded to A. J. Chandler, Coaticook, P. Q.

Special prize for general proficiency, Alex. Glass.

Practice of Veterinary Medicine and Surgery—1st prize, a microscope, value \$50, the gift of David Morrice, Esq., won by A. J. Chandler.

2d prize, Fred Torrance, B.A.

Junior Class—1st prize, James Brodie ; 2d, John Henry, Jr.

Obstetrics and Cattle Pathology—Senior class—1st prize, A. J. Chandler ; 2d, Walter Wardle. Junior class—1st prize, James Brodie ; 2d, B. A. Pomeroy.

Anatomy—Senior class—1st prize, Walter Wardle ; 2d, A. J.

Chandler. Junior class—1st prize, T. J. O'Connell; 2d, James Brodie.

Materia Medica—1st prize, James Brodie; 2d, Wm. Bell.

Botany—Prize, the gift of Professor Dawson, won by E. Crimdale.

Entozoa—Prize, presented by Professor Osler, won by Fred. Torrance, B.E.

Dentistry—A special prize, a tooth rasp, for practical manipulation in dentistry, presented by Wm. Son Bryllen, Boston, won by C. B. Robinson.

In the French Class—For the best general examination, silver medal, the gift of the Council of Agriculture, won by Philias F. Labelle, St. Dorothee, P. Q.; 2d, Paul Paquin; 3d, the gift of the author, J. A. Coutine, V. S., Quebec, won by O de Maisson-neuve.—*The Gazette*.

SOCIETY MEETINGS.

NEW YORK STATE VETERINARY SOCIETY.

The regular meeting of this society was held at the American Veterinary College, on Tuesday, April 11, 1882, and called to order by the President, Prof. A. Liantard, at 8 P. M.

After roll call and the reading of the minutes of the last meeting, which were accepted, Dr. L. McLean proposed for membership Drs. Kemp, Devoe and Saunders, whose names were referred to the Committee on Admission, consisting of Drs. Coates and Bunker.

The Committee on Revision of the Constitution and By-Laws reported progress.

Dr. L. McLean reported a case of suspected glanders. The case is one of an aged horse which has had a foetid, viscid, white discharge from both nostrils for the last four weeks. The horse came under the Doctor's care two weeks ago, when he found, in addition to the discharge, that the submaxillary gland on the off side was enlarged and slightly attached to the bone. The sinuse on the same side were enlarged. The mucous membrane of the

septum nasi was somewhat leaden in hue, the temperature normal. He administered two successive cathartics, without producing any more marked symptoms of glanders. At the present time the sub-maxillary gland has become smaller, and the leaden hue has disappeared from the mucous membranes. He had examined the teeth and buccal cavity without finding any abnormal condition. In answer to the question, "Is this a case of glanders, or not?" the members of the society differed considerably in opinion, the majority not being willing to give a decided opinion *pro* or *con*.

Dr. Michener presented the stomach of a horse, twelve years old, which had been in the stable of the Green-Car Co. for the past three years. During the past two years he has had frequent attacks of colic, which have been relieved readily by the usual treatment. On April 6th he had an attack of colic, and died on the following afternoon. On post-mortem examination the Doctor found impaction of the small intestines, and contraction and induration of the ilio-cæcal valve. He found no bots or intestinal parasites. The left side of the stomach presents large surfaces where the epithelium of the mucous membrane has been destroyed by ulceration. The right sac of the stomach is normal.

After the appointments of various committees, Dr. Cattanaact was appointed essayist for the next meeting.

Motion to adjourn was then carried.

H. T. FOOTE, M.D., V.S., *Sec.*

CORRESPONDENCE.

REGULATION OF VETERINARY PRACTICE.

Mr. Editor :

In looking over the back numbers of the AMERICAN VETERINARY REVIEW, I find in the May number of 1878 a draft of a bill sent to the Legislature of this State to regulate the practice of veterinary medicine and surgery. This, however, failed to pass. Again we find, in the July number of 1880, that the same bill was reconsidered before the Legislature, but met with the same fate as before. Whatever may be the cause of these failures I

am unable to state. However, it has been stated that the time had not arrived for granting the veterinary profession the protection asked for, nor had they made the advancement in veterinary science to need the protection of legislation.

If the bill was rejected because it asked for more privileges than the Legislature was willing to grant the profession, why not present one in a more modified form? In this connection I will call your attention to the dental law passed and signed by the Governor in June, 1879. They, like the veterinary profession, had met with repeated failures, until the following modified bill was presented and became a law.

Here is a copy of the law, taken from *Johnson's Dental Miscellany*, July, 1879. We will substitute the words veterinary medicine for dentistry:

AN ACT TO REGULATE THE PRACTICE OF VETERINARY MEDICINE
AND SURGERY IN THE STATE OF NEW YORK.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. It shall be unlawful for any person to practice veterinary medicine in the State of New York for fee or award, unless he shall have received a proper diploma, or certificate of qualification from the State Veterinary Society, or from the faculty of a reputable veterinary or medical college, recognized as such by said Society; provided that nothing in this Section shall apply to persons now engaged in the practice of veterinary medicine in the State of New York.

§ 2. Any person who shall practice veterinary medicine for fee or reward in this State, without having complied with the regulations of this Act, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined not less than fifty, nor more than two hundred dollars for each offense. All such fines shall be paid into the treasury of the county where such conviction shall have taken place, for the benefit of the common schools of the county.

§ 3. Every person practicing veterinary medicine within the

State shall, within sixty days after the passage of this Act, register in the office of the Clerk of the county where located, in a book to be prepared and kept by the Clerk for that purpose, giving his name, office and post-office address, and the date of such registration; and shall be entitled to a certificate of such registration upon payment to the Clerk of a fee of fifty cents.

§ 4. All acts or parts of acts inconsistent, or in anywise conflicting with the provisions of this Act, are hereby repealed.

§ 5. This Act shall take effect immediately.

FORM OF VETERINARY SURGEON'S CERTIFICATE FROM COUNTY CLERK.

COUNTY CLERK'S OFFICE, }
City and County of }

I, _____, Clerk of the City and County of _____, do hereby certify that _____, in compliance with the above act of the Legislature of the State of New York, hath this day duly registered his name and address in a book kept in this office for that purpose.

In witness whereof I have hereunto subscribed
 [L. s.] _____ my name and affixed my official seal, this
 _____ day of _____ A. D., 18 _____

Clerk.

I think the State Legislature at Albany would willingly enact such a law as the above. And every veterinarian, be he graduate or non-graduate, would be willing to contribute towards procuring the same. It entitles no one to a recognition until he has received a licentiate certificate of qualification from the State Veterinary Society. In this way it would prove a stimulus to every self-educated veterinarian to place himself above the ignorant empirical pretender, to a place more on a level with the regular graduate. This would be a step in the right direction, as it would bring about a union in the profession, and thus in time prove the death blow to quackery and ignorance. If we turn our attention to the veterinary profession in Great Britain, we find that the *Royal College of Veterinary Surgeons* was incorporated in 1844,

with a view of uniting the profession. But it is only within the last two years that the desired result was reached, and only then by admitting those holding the *Highland and Agricultural Society's* certificates almost on their own terms. Thus, it will be seen, it took over thirty years to accomplish what could have been done in far shorter time had a more liberal policy been followed by the members of that body.

Great and good works no doubt advance slowly, but it is better to gain little by little the passage of such a law as would be productive of some good results, than to make no progress at all. If the profession cannot advance one foot, be satisfied with one inch; and just as sure as effects follow causes, as the sparks fly upwards, and bodies fall to the ground, will their efforts be rewarded, and result in the desired progress of the veterinary profession.

Respectfully yours,

J. C. McKENZIE.

ROCHESTER, N. Y., Feb. 13, 1882.

DR. STEIN A REGULAR GRADUATE.

FORT LEAVENWORTH, KAN., March 7, 1882.

Editor of the Review :

In the November issue of the REVIEW, I made the statement that Dr. Stein was a non-graduate. I am informed by the aggrieved party that he is a graduate of the Berlin Military Veterinary College, and that his diploma bears date 1862. Through your columns I beg to right an unintentional wrong, which occurred in spite of my endeavors to verify all statements made. Dr. Stein has my apology for the error.

Very respectfully,

A. A. HOLCOMBE.

STANDING OF AMERICAN GRADUATES IN ENGLAND.

Editor American Veterinary Review :

DEAR SIR.—Perhaps the enclosed letter will interest those of

your readers who are graduates of the American Veterinary College. It was received in answer to the question as to what position a graduate of the American Veterinary College would occupy professionally should he wish to practice in England under the Veterinary Act lately passed there, and whether clause 13 of said act was intended to apply in such an instance. The clause says the holders of diplomas from *recognized* Colleges would be entitled to practice there under the Act, "and to become to all intents a member of said Royal College."

Yours truly,

W. H. PENDRY.

BROOKLYN, April 14, 1882.

ROYAL COLLEGE OF VETERINARY SURGEONS, }
 10 RED LION SQUARE, W. C., }
 March 31, 1882.

DEAR SIR.—Your letter dated 19th inst., has been handed to me by the President, Geo. Fleming, Esq., and I am now directed to inform you that your solution of clause "13" of the above act is quite correct, *i. e.* that the same applies to those who are holders of diplomas from recognized colleges in foreign countries.

Yours faithfully,

A. W. HILL, Sec'y.

MR. W. H. PENDRY, Brooklyn, U. S. A.

NOTICE.

ODD NUMBERS OF THE "REVIEW."

We have received information from many of our readers that they are in possession of odd numbers of the REVIEW for one, two, and even three years. If these gentlemen will do us the favor of returning all duplicate numbers, they will afford us the opportunity to distribute them to parties who miss them. Direct them AMERICAN VETERINARY REVIEW, 141 West 54th Street, New York, N. Y.

NEWS AND SUNDRIES.

THE recent influenza has been accompanied by an unusual number of abortions.

CATTLE COMMISSION.—The report of the Treasury Cattle Commission is received, but too late for extended notice in this issue.

THE first importation of cattle into the United States was in 1610, when a bull and four cows, after a long and stormy passage, landed in Virginia from Ireland.—*The Iowa Homestead*.

DISEASES OF FOWLS.—The amount of wealth represented by the poultry interest of the United States, should compel all country practitioners to make careful studies and reports of the diseases of fowls.

SPLENIC FEVER VACCINE.—Pasteur's Splenic Fever Vaccine matter is to be tried in Prussia. The Minister of Agriculture has empowered a commission, of which Virchow is a member, to investigate its value.

LEGISLATIVE PROTECTION NEEDED.—Every veterinarian should use his influence to secure the passage by this Legislature, of a bill to elevate the standard of the profession and protect the public against unqualified and ignorant "horse-doctors."

A BREEDING MARE MULE.—Mr. E. Allen, of Agency City, Iowa, is the owner of a breeding mare mule. She has had three colts from horses, and is at present in foal by a jack. The progeny bear no resemblance to the mother, except in fineness of bone. Affidavits of reliable parties verify this remarkable phenomenon.

SINGULAR LONGEVITY.—A writer in *Land and Water* speaks of the recent deaths of a pony and canary bird, the former aged 38 years and the latter 19 years. The pony died of a gun-shot wound, and was hearty and well just before the shooting. The canary died a natural death through the infirmities of age.—*Turf, Field and Farm*.

HEAVY HEIFER.—W. L. Mullin, Winfield, Kas., writes to the *Kansas City Indicator*, as follows: I thought I would send you a description of perhaps the largest heifer in the world. She was four years old last May, clear white, and weighs 2,800 lbs., 17 hands high, 12 feet around the girth, and 32 inches around the forearm. She was raised in Cowley county, Kansas.

CATTLE CENSUS.—Out of 157,588,521, the number of cattle estimated to be in the world, 35,907,791, including all kinds, were in this country at the taking of the last census. Out of 382,763,015, sheep we had 51,183,903 head. Out of 81,990,330 hogs, we had 47,688,874, which would place the United States as the foremost hog country in the world, with more than one half of the grand total.—*The Farmer's Review*.

PRESERVATION OF ANATOMICAL SPECIMENS.—L. Gerlach recommends the glycerine process of Van Vetter, which has been somewhat modified, first by Stieda, and then by Gerlach himself. Stieda's recipe is as follows: Make a mixture of 6 parts of glycerine, 1 of brown sugar, and $\frac{1}{2}$ part of saltpeter; Gerlach uses 12 instead of 6 parts of glycerine. The preparations are cleaned and laid in this liquid, in which they remain from three to six weeks, according to their size. When taken out they have a dark brown color and are quite firm; they are then hung up in a chamber of the temperature of 12° – 14° R. (59° to $63\frac{1}{2}^{\circ}$ Fahr.) In the course of eight to ten days they become soft and flexible, but must be allowed to hang from two to six months longer, to be available for demonstrations. The more glycerine used, the lighter in color the preparations remain. The method is best applied to preparations of articulations, to sense organs (eye, ear), larynx, etc. The formation of a crystalline precipitate, which sometimes appears in the drying, is met by the increase in the proportion of glycerine, and a diminution of the saltpeter and sugar. If large objects are to be set up, such as whole extremities with their muscles, or the thorax with the ligaments dissected, pure glycerine is preferable to the cheap crude article, for specimens turn out whiter and less hard in it. Gerlach has used it for temporal bone with tympanum and auditory ossicles, and obtained

valuable preparations which may be employed with great success to demonstrate the transmission of waves of sound from the tympanum to the labyrinth.

EXCHANGES, ETC., RECEIVED.

FOREIGN.—Veterinarian, Veterinary Journal, Clinica Veterinaria, Archives Veterinaires, Recueil de Medecine Veterinaire, Annales de Belgique, Revue fur Thierheilkunde und Thierzucht, Presse Veterinaire, Revue de Hygiene, Gazette Medicale.

HOME.—Medical Record, Turf, Field and Farm, American Agriculturist, American Cultivator, Country Gentleman, Medical and Surgical Reporter, Bulletin of the National Board of Health.

JOURNALS.—New York Weekly Witness, American Dairyman, Farmers' Review, Daily Register (Mobile), Coleman's Rural World, Times of Natal, Medical Herald, Western Farm Journal, &c., &c.

BOOKS.—Report of the Treasury Cattle Commission, Report of the National Board of Health, The Horse in Motion.

PAMPHLETS.—Les Cheveaux de l'Amerique du Nord, Etat Sanitaire des animaux domestiques de Belgique, Agricultural Record and Journal.

COMMUNICATIONS.—I. B. Rogers, W. H. Pendry, A. A. Holcombe, J. Murray, C. Ring, M.D., E. A. A. Grange, H. N. Keifer, M. T. Tracy, J. B. Garrison, M.D.

NOTICE.—A few copies of vol. 4 and 5 of the REVIEW can be had at \$3.00 each.

AMERICAN VETERINARY REVIEW,

JUNE, 1882.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

BY A. ZUNDEL.

(Continued from page 47.)

CONTRACTED HEELS—HOOF-BOUND.—*Continued.*

VI. *Treatment.*—Prophylaxy plays an important part in the treatment of this disease. It is easier, and especially more rational, to prevent than to cure it when once established.

One of the first indications is to prevent the drying of the hoof, to effect which baths and poultices have been commonly used—the latter formed of cow manure, of clay, etc.—or by the application of greasy substances, in order to diminish the evaporation of the water of the hoof. Some practitioners are accustomed to use tar and various hoof ointments. The number of preparations brought into use is considerable, and in respect to some of these, the secret of which has been kept by the inventors, the effects have been entirely different, and the hoof, instead of preserving its natural good condition, has been altered in its qualities. “It is not with ointment,” says Hartmann, “that the hoof injured by the blacksmith can be repaired. It is by good shoeing, and never otherwise. The workman, to excuse himself, attributes to the quality of the hoof the origin of the mischief he has done.” Hoof ointment never gives to the hoof its natural polish, but many ointments, by becoming rancid, take off that which the blacksmith has left. The irritating ingredients which compose

them sometimes produce the same results. This does not mean that a reasonable application of ointment is not necessary; but to act favorably it is essential that one coat should be carefully removed before the application of another. Otherwise, the new will fail of its proper effect, and on the contrary, the old coat, by its alteration, will give rise to a deterioration of the hoof, especially in affecting the substance which unites the horny elements, and would reduce it to fine powder. And, again, ordinarily it is only the wall which is greased, the hoof of the sole and of the frog being left without, though they may be in equal need of it. The best hoof ointment is made of lard, a small quantity of wax or turpentine, sometimes mixed with tar. Glycerine is very useful, to give the hoof suppleness when it has become hard; it is applied by friction, after the foot has been well washed and dried. In the majority of cases it is preferable to poultices, to mucilaginous baths, or to keratophylous ointments.

Greasing is necessary for horses which are much exposed to dampness, and is as good for the sole and frog as for the wall. It is applicable, also, to feet which have to stand on dry bedding. Feet which, on account of diseased conditions, require to be frequently soaked or poulticed, ought also be greased. Bedding of fine sand and of sawdust has been recommended. It is well, also, to place horses upon marshy lands. All these measures may be advantageous if the feet are properly shod.

Good shoeing is the essential prophylaxy of hoof-bound; we must avoid all improper practices likely to promote desiccation and contraction of the foot, such as abuse of the rasp; too long application of the heated shoe when fitting it to the foot; the lowering of the heels; the excessive paring of the frog or of the bars; the bad fitting of the shoe; useless caulks; too many nails in the quarter or near the heels—all these errors must be carefully avoided. The foot, moreover, must not be allowed to grow too long. The shoeing should be renewed at least monthly, even if the shoe is not worn. And lastly, the horse must not be allowed too long periods of inactivity.

It has been proposed to abolish the custom of shoeing, but in the present conditions and modes of using the horse this is im-

possible. The feet, deprived of their accustomed protection, would soon become painful, and only by keeping the animal in the country could the feet be suffered to remain unshod.

Several modes of shoeing have been invented to prevent contractions in feet which are predisposed to them. Some are undoubtedly beneficial, but they must be used as an ordinary shoeing, and not reserved until the access of the disease. Good ordinary shoeing is often all that is required, but no doubt better and quicker results will be obtained by the shoe with short branches, with the flat shoe, or with the Charlier shoe.

The *half shoe*, the *shoe with short branches* (*fer a croissant*), originally recommended by Cesar Fiaschi, then by Solleysel, Lafosse, Sr., and Crompton, is an ordinary shoe, made light, with very short branches (fig. 7), which when put on protects the toe, the

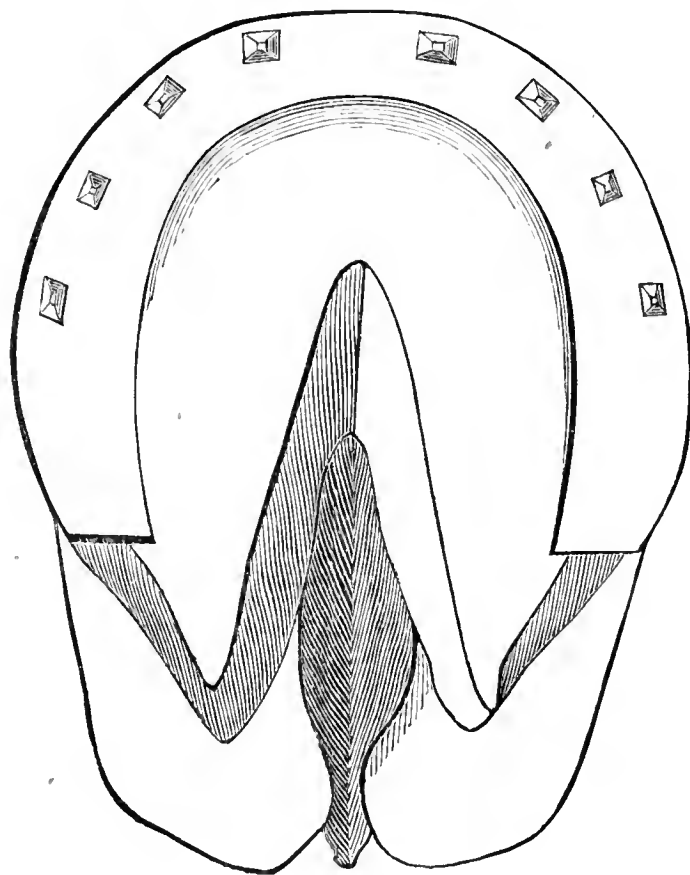


Fig. 7.

mammæ (outside or inside toe), and the anterior parts of the quarter in such a manner that the parts posterior to these remain uncovered, and rest directly on the ground. Thus shod, the shoe is almost in its natural condition; it rests on the ground by its posterior part, and the heels are made to contribute to the movement of expansion of the elastic parts of the foot. This shoe

then, has real advantages, if the posterior part of the foot is yet normal, but if the heels are low and the frog atrophied, it ceases to be of service.

The *flat shoe*, or the *shoe with base (fer a siege)*, first recommended by Osmer, Morcroft, and more recently by Miles, Einsiedel and Hartmann, is the style generally adopted at the present time in Saxony, and in various parts of Germany, as well as in England. In France it has found its way through the benefits observed by a few veterinarians. It is a shoe almost equal in thickness to its width, square, so to speak, but as light as possible; the internal border of the foot surface being hollowed or dished in order not to come in contact with the sole, while the part which rests on the plantar border of the wall is perfectly flat and horizontal. The heel portion is rounded, and covers mostly the heels of the foot where the borders of the shoe become perfectly adapted to the borders of the wall, to the remotest part of the heels, and preserves the same contour until it reaches the frog. The shoe nowhere projects beyond the border of the wall; it is only towards the toe that it is slightly raised, and has a small clip. The groove of the English shoe renders its application better than the peculiar nail holes of the French. Five or six nails are usually sufficient. This shoe allows the dilatation of the foot in all its limits, and while protecting the heels, does not predispose to their contraction. For its application, the plantar border only needs paring. That of the sole, the frog and the bars must be carefully avoided.

For the *shoeing of Charlier*, or *peri-plantar* (fig. 8 and 9), only the part of the hoof which is most exposed is protected. It preserves entirely all the other parts of the plantar surface in such a way that, as in the conditions of nature, it is only by the fact of the wearing of the shoe that the excess of hoof is gradually removed. The foot shod by this process is provided at its inferior border with a metallic bar, often greater in thickness than in width, lodged in a groove made exclusively in the wall. This bar adapts itself in its internal circumference to the contour of the sole, which projects beyond the border of the groove, because all its thickness has been preserved as well as that of the frog and of

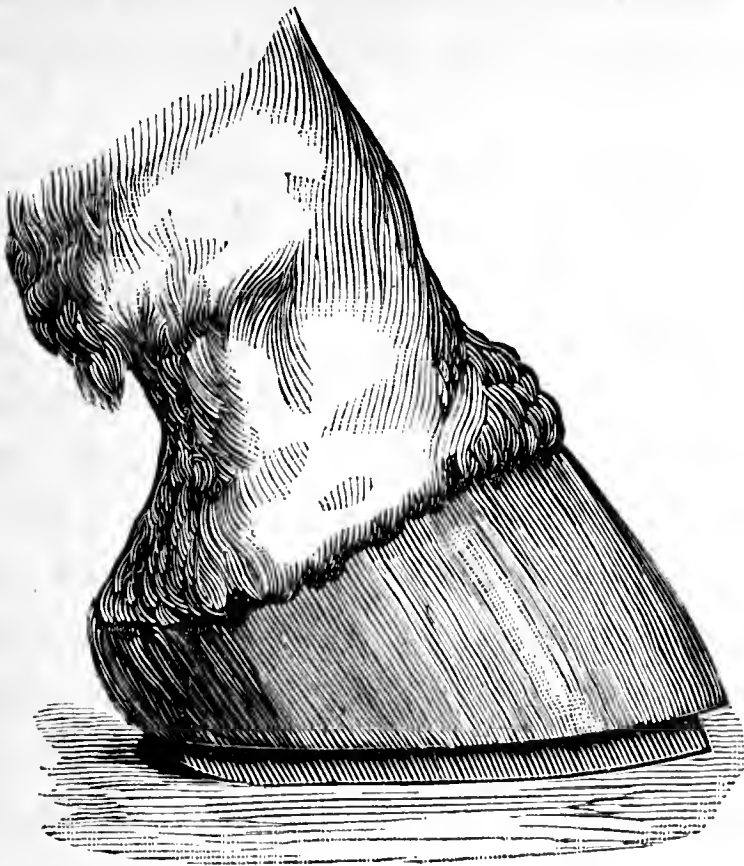


Fig. 8.

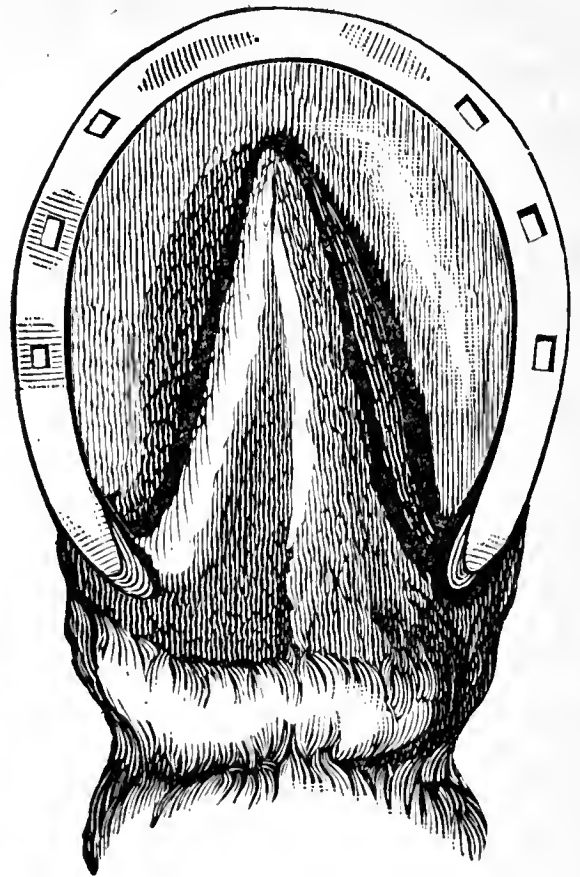


Fig. 9.

the bars. In this way the rest of the foot receives its adjustment from the shoe itself, and by the regions of the plantar surface which it surrounds. This result does not, however, take place immediately, or when the foot is recently shod; but by degrees and as the shoe wears out, the time arrives when the horse walks both on his shoe and the sole of his foot. Owing to the general equalization of the friction, any partial wear is thus diminished, and the important result is secured, of reducing the weight of the shoe without the necessity of too frequent renewals, experience having proved that for the fore feet it is quite as durable as the ordinary shoe of twice its weight, but which, from the manner in which it is applied suffers, unaided, the effects of the pressure and friction. (H. Bouley.) As in the action of paring the foot only the projecting portions of the wall at the inferior border are removed, the preserved parts of the plantar region resist the movement of retraction, and thus prevent its occurrence in a transverse direction. Again, as the thickness of the Charlier shoe is greater than its width, it possesses a certain elasticity and adapts itself to the successive movements of the dilatation and contraction of the horny box, however limited they may be.

We may now refer to some special modes of shoeing, recommended as preventive of contracted heels, but which seem to us to possess inferior advantages to the preceding. We first find the *unilateral shoe* of Turner, which, according to that veterinarian, relieves the foot from pressure upon the heels by placing the nail holes on the toe and the external branch only. Turner recommends also the conservation of the frog and that of the bars, and it is probably to this that the success he has obtained by that mode of shoeing is due.

Coleman recommended a shoe very thick at the toe and thin at the heels, the toe being three times as thick as the heels. This veterinarian thought that by this shoe the animal was obliged to rest on his frog; at the same time the nails were driven in the toe principally, so as to allow the dilatation of the heels. This shoe has no real advantages, and predisposes to corns.

The *bar shoe* is of some utility when the frog is well developed, by placing on that part the pressure of the foot, and leaving the heels free. But it often fails in contracted heels, because in applying it these parts require to be pared down, in order to increase the prominence of the frog, and a condition is thus produced which does not exist in contracted feet. The same may be said of the *Charlier bar shoe*. The objections stated and the reasons suggested are true of all the various shoes designed to adjust the frog-pressure.

The *hinge-shoe* or *articulated* (fig. 10 and 11) of Bray, Clark, and

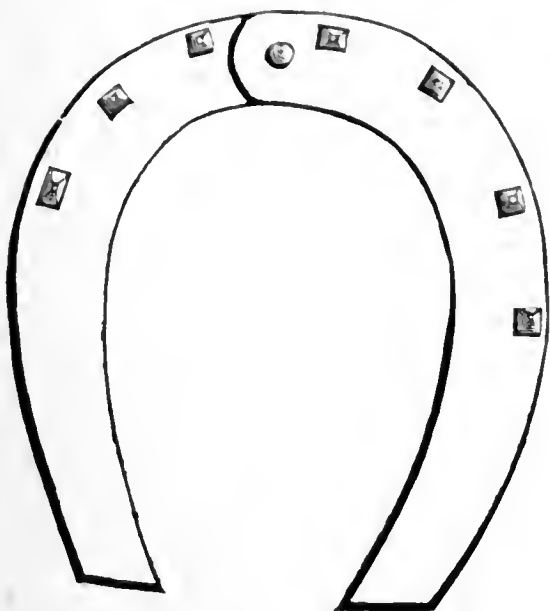


Fig. 10.

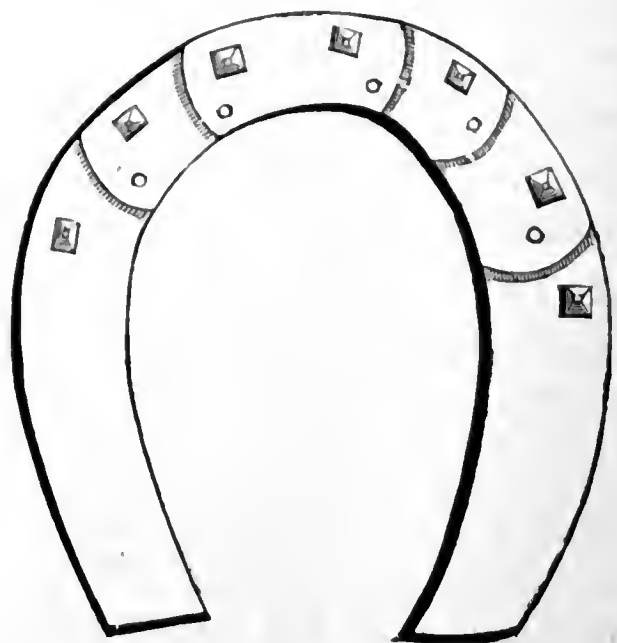


Fig. 11.

Vatel, and the *half-shoe* of Sempastous, of Peillard, also possess but a doubtful utility. Practice has not confirmed the hopes of their inventors. They are difficult to make, easily injured, and of small solidity, and their advantages are wholly of the problematic order.

Mayer has recommended a shoe whose internal border is thicker than the external, in such a way that the plane of the plantar surface of the shoe shall be inclined outwards, and instead of the concavity of the ordinary shoe, where the foot is pressed when in a position of rest, there is a convexity which promotes and even increases the dilatation of the foot. This mode of shoeing has for its inconvenience the exposure of the sole to contusions. It supposes an extensive expansion of the foot which is not natural; the horizontal plane is amply sufficient in ordinary circumstances. We have, however, used it advantageously in preventing the pressure of the sole against the shoe by means of a sheet of gutta percha. We have used it in almost complete contraction, and we think we have noticed, with Hartmann, that the dilatation once started by a mechanical means, not too severely applied, nature continues it, with the assistance of that style of shoe. Instead of giving that special shape of the shoe in its entire length, it has been proposed to have it only at the branches; each heel presenting at its internal border a thickness, double or even treble that of the external, by which the shoe is inclined outwards by its plantar and becomes horizontal by the ground face. It is flat at the toe and the quarters, and is the shoe with *slippers* of de la Broue, of Solleysel (fig. 12), and that recently Vatrîn has used in proposing to have the internal half of the width of the shoe inclined. It thus resembles the shoe *genêté* or *with ears*, of which we shall speak hereafter. This shoe is only indicated when the heels are already contracted; they have no indication as prophylactic shoeing.

The shoe with slippers is indeed a shoe which in some cases may cure contraction. "If the results obtained have not been very satisfactory," says Defays, "this depends not upon the shoe, but arises from the defective manner in which the foot was pared. To be efficacious in that shoeing the heels must be left alone, and the sole and the bars must be well thinned. It is true that in

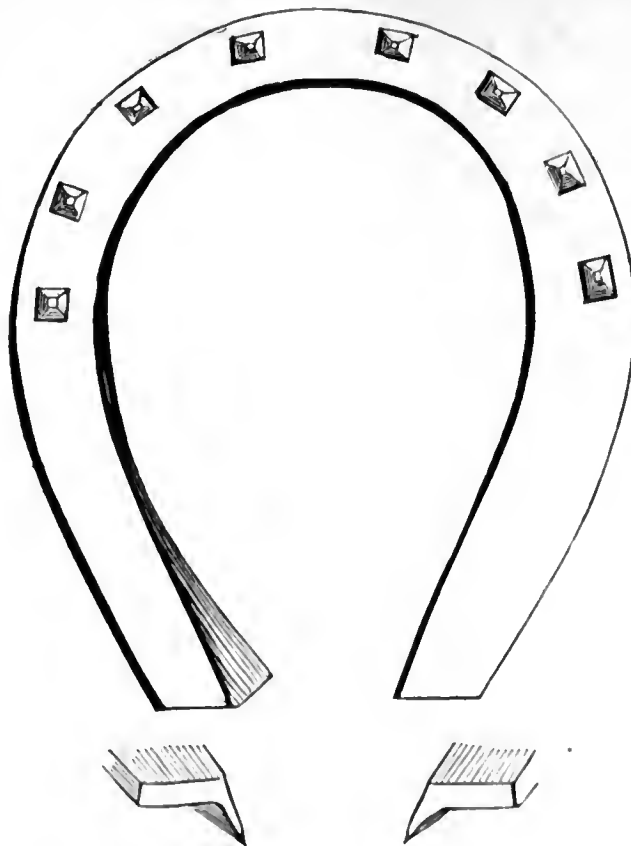


Fig. 12.

this way the foot is in the most favorable condition for contraction, but the circulation is rendered easier in the tissues underneath, and the effects of the thinning of the hoof are diminished by the resistance opposed to the contraction by the inclined planes of the branches of the slipper. The same may be said of the shoe of de Belleville, also recommended by Solleysel, and for whose applications the foot has to be carefully pared. We feel assured of the propriety of recommending the use of the inclined plane of the branches of the shoe, with the presence of a small clip on the inner borders of the heels, such as proposed by Watrin.

(To be continued.)

DISTOMA HEPATICUM INFESTING THE LUNGS OF CATTLE.

BY A. J. MURRAY, M.R.C.V.S., Detroit, Mich.

While acting as Inspector for the United States Cattle Commission, I examined a large number of lungs in the Detroit slaughter-houses, and though I did not succeed in finding any lungs which showed the characteristic lesions of pleuro-pneumonia,

I found some showing lesions which bear some resemblance to a certain stage of the lung plague. There is, therefore, a practical importance attaching to a description of these lesions, and there is, also, a scientific interest attaching to them, as I believe I am the first person to have discovered the distoma hepaticum in the lungs of cattle in America.

On 4th of October, 1881, in examining the lungs of nine Texan cattle, I found three to be diseased; one was affected with interstitial pneumonia, and the section which was made through the diseased portion showed it to be not much over an inch in diameter, and the nodule which the diseased part formed was about the size of a walnut.

In another lung a small space about the size already mentioned was the seat of hemorrhagic infection. The exuded material seemed to be liquifying and absorption to be taking place.

A somewhat similar area in another lung had undergone fibroid degeneration. On the 5th of October I examined a lung in which an area of about an inch and a half in diameter was the seat of fibrinous exudation. Six or seven small cavities about the size of a bean were exposed in making a section of the nodule. These cavities were filled with pus.

In another lung an area of similar size was in a state of cheesy degeneration. This portion of lung was encysted, and calcareous degeneration was commencing in the contents of the cyst.

In each of those cases the seat of disease was the anterior portion of the lung, and it seemed rather extraordinary that in each case the area should be so small.

On the 20th November I examined the right lung of a Texan animal, and found near the base an induration about the size of a moderate sized apple, which extended nearly from the internal to the external face of the lung. One could see through the pleura on both surfaces of the nodule a black discoloration, which was irregularly distributed over the surface of the nodule and in the lung tissue adjoining it. The lung tissue in general and that adjoining the nodule were examined. The bronchial tubes were healthy up to the very margin of the nodule, but at different points in the lung, and especially in the vicinity of the nodule,

there were small irregular areas of black discoloration surrounded by fibrous tissue, rendering the portion of lung affected impervious. These appearances I attribute to hemorrhagic infection having taken place; the fluid part of the blood was absorbed, but the coloring matter of the blood remaining unabsorbed produced the black discoloration. There was always an area of fibrous tissue surrounding the black discoloration; this was developed to close up the cavity occasioned by the destruction of lung tissue. At these points there appeared to be a drawing together of the lung tissue towards the centre of what I may term the cicatrice.

On making a section of the nodule it was found that the lung tissue had been mostly removed by absorption, but that stretching from one side of the cavity to the other were numerous bands or septa. These bands had undergone calcareous degeneration, as also had the walls of the cavity, which I found to contain two flukes (*distoma hepaticum*). The biggest of the two, when drawn out to its full size, was about two inches long. There was a small quantity of a dirty brownish-looking liquid in the cavity, no doubt mostly composed of the *débris* of the softened lung tissue. Adjoining this cavity was a small one, containing a small quantity of the same kind of fluid; but the walls of this cavity were composed of fibrous tissue; it was empty, and did not contain any parasites.

In another lung examined shortly after the one above mentioned, a similar cavity was found, which also contained two flukes (*distoma hepaticum*). This case appeared to be more recent, as the bands stretching from the one side of the cavity to the other had only partially undergone calcareous degeneration, and were pink and soft in some portions. The same remark applies to the walls of the cavity. This lung had likewise some small encysted portions of tissue undergoing cheesy degeneration.

The cases in which I found the *distoma hepaticum* in the lung throw light on the previous ones in which no parasites were found, as even in the lungs in which parasites were present I found morbid alterations in parts of the lungs in which there were no parasites, but which were no doubt occasioned by their wanderings. In five cases, though I found the morbid alterations pro-

duced by the parasites, I found no parasites; this, I think, may be accounted for by the parasites having died in the cyst which formed around them, their bodies softening and becoming absorbed.

On making a rather hurried examination of the veterinary works in my library treating on parasites, the only reference I found to the distoma hepaticum infesting the lungs was by Dr. Cobbold, who mentions a case in which that parasite was found in the lung of an ichneumon. On sending to Professor Law, however, a description of my cases, he referred me to two articles by M. Hedley, M.R.C.V.S., which appeared in the *Veterinary Journal* for June and July, 1881, in which that gentleman had discovered the distoma hepaticum in the lungs of cattle.

How do the parasites find their way into the lungs? To this interesting question I would suggest the answer that the cercaria, which is usually supposed to be swallowed while the animal is drinking, in some instances does not pass further than the pharynx, and from there passes into the larynx, and from thence into the lungs. I think the distoma hepaticum occurs quite frequently in the lungs of Texan cattle, as the total number of lungs which I examined belonging to that breed was quite small.

Besides the scientific interest attaching to these cases, they are of practical importance, because the morbid alterations which the parasites produce might be mistaken for an advanced or convalescent stage of the lung plague.

AN INQUIRY

INTO THE ETIOLOGY AND PATHOLOGY OF THE VENEREAL DISEASES OF MAN AND OF THE LOWER ANIMALS.

BY CHARLES F. RING, M.D.

(Continued from page 54.)

“It enters the domain of every branch of pathology. A close acquaintance with it is claimed by the physician, the surgeon, the specialist, in nearly all branches. Miles of pages have been written about it, and yet all is not told. Every year adds to our

exact knowledge, and brings new symptoms and new growths of morbid phenomena into the fold of syphilis which were not there before. Nearly all the important questions in syphilis are still in dispute among high authorities: Is the poison single or double—capable of producing only one, or of yielding two diseases? Is it peculiar to man, or may animals also be affected?" Again: "When syphilis first began to be written about, after the outbreak at the end of the fifteenth century, when it went under the name (generally) of the French disease, it was uniformly regarded as a new malady. It was not confounded with other venereal maladies known at that date, but was uniformly described as a *morbus novus, inanditus, incognitus*, etc.

"The writers who described it gave vent to their surprise in their words, and were unanimous in that expression. As Bassereau puts it: 'There was one point upon which there was not the least difference of opinion between them; upon which the oldest, the youngest, the wisest and the most ignorant were of unanimous accord, namely: that none of them had ever observed anything analagous or similar to the *French disease* before the arrival of Charles VIII. in Italy.'"—[Venereal Diseases, pp. 55-7.]

Professor Otis distinguishes between the "new disease" and the contagious venereal ulcers that were known to the older and oldest writers most clearly, as follows: "The literature of that time ascribed the locality of origin to various regions, and designated it as 'mal Anglais,' 'morbus Gallicus,' 'maladie de Naples,' 'pox la grosse verole,' 'lues venerea,' etc. *It was then recognized as distinct from the contagious genital ulcer, the action of which was simply local, and had long been known, and also from gonorrhœa, and was appreciated as a constitutional disease, capable of hereditary transmission.*"

"Within a comparatively short period, however, the distinction between syphilis, the local ulcer (or chaneroid) and gonorrhœa was lost sight of, and all were accepted as of common origin, differing only in development from some constitutional idiosyncrasy or predisposition, until the latter part of the eighteenth century, when Benj. Bell, of London, claimed a distinct origin for gonorrhœa, and M. Phillip Ricord, of Paris, in 1831, proved the fact by a long series of ingenious and conclusive experiments. M.

Bassereau, a pupil of M. Ricord, in 1852, demonstrated a distinct and characteristic difference between the local contagious ulcer (the chancroid) and the lesion (chancre), which was followed by constitutional syphilis, and proved by a large number of observations that the local contagious ulcer (the chancroid) was not followed by, nor was it capable of producing any constitutional disease, while the true syphilitic sore (chancre) was *always* followed by constitutional manifestations of syphilis. Mr. Acton, a valued English authority, writes (on the urinary and genital organs, London, 1860, pp. 279–347): ‘We must, however, frankly admit that in the present state of science it is impossible to determine where or under what circumstances the virus or its effects first appeared. My opinion is that syphilis originally arose from some poison introduced into the economy from animal or decomposing matter, and that thus produced, it has been transmitted from one individual to another.’”—[Johnson’s Encyclopedia, last ed., article Syphilis.]

We would ask that the reader keep in mind Mr. Acton’s theory of the origin of syphilis, as similar theories will be adduced further on, and their significance fully pointed out.

Jourdan, who has written a celebrated pamphlet (Historical and Critical Observations on Syphilis), has this to say of its history: “The question is generally put, Did syphilis appear for the first time towards the close of the fifteenth century? The terms are not sufficiently explicit, since, as a preliminary matter, it is necessary to explain what is meant by syphilis. Now this definition, which has been neglected by all writers, is the only way of duly appreciating, judging and reconciling the different opinions successively advanced on this subject. By the term syphilis, therefore, is to be understood: 1, a general affection of the system, which presents itself under a most frightful aspect, with many peculiar modifications, assuming a real epidemic character. In this sense, the word designates the disease which broke out towards the end of the fifteenth century. 2, it may serve to express morbid symptoms arising from an intercourse with a disordered person, communicated in the same way to other individuals, and having with each other a more or less intimate connection. Now, if we use the word syphilis in this last sense,

it can be incontestably proved that from the remotest antiquity the diseases which it designates were known."

We have no disposition to find fault with the above definitions when confined to their proper places; there they will be acceptable to all. As it is, they are not only incorrect, but misleading. For instance, who would think of applying the first definition to syphilis at any time since the epidemic, or call the "diseases" in the "last sense" syphilitic? Jourdan forgets to use the words general or constitutional disease, and also that syphilis cannot be used in the plural, to signify more than one form of affection; hence these maladies cannot be called syphilitic, but venereal. It has been admitted all along that sundry venereal affections were known to remotest antiquity, only that no constitutional (syphilitic) disease was recognized until near the close of the fifteenth century. Jourdan, we infer, must be a "unicist."

Grauvoge tells us (Text Book of Homœopathy, part 2d, p. 348) that he has "found in the results of coitus with all precision *from one and the same cause* threefold effects, which certainly here as well as there are only referable to the different variety of the conditions, to the variety of the bodily constitution. Thus, before such a disease can develop itself, the conditions for it must first be given, and only within and in connection with the hydrogenoid constitution does the venereal poison become the cause of the sycotic secretion of the so-called gonorrhœa. It can produce gonorrhœal as well as ulcers; but these are not cured or benefitted by mercury, but are aggravated, and if the gonorrhœa is removed by injections of nitrate of silver, and such ulcer is cauterized or otherwise removed, not radically cured by internal remedies, the gonorrhœal dyscrasia is always produced; as by cauterizing the syphilitic chancre the so-called *chancre dyscrasia* is produced upon the soil of the oxygenoid constitution," etc.

From this it will be clearly seen that Grauvoge looks upon the syphilitic poison only as a *relative* poison, and not as a specific one, as modern science inclines to view it. Also that (just here) he is in full accord with the doctrines of the "physiological school," founded by Broussais, which, in this department at least, is obsolete.

Bäumler writes: "The first knowledge of syphilis, as a separate

and distinct disease, dates from the end of the fifteenth century, from that notorious and epidemic-like outbreak of the disease in Italy, between the years 1490 and 1500. From the numerous writings which appeared in the latter part of the fifteenth century and in the beginning of the sixteenth, it is evident that the physicians regarded it as a new disease. Its origin is, by common consent, traced by them to the army of Charles VIII. of France, who had been in Italy since September, 1494, and in 1494-5 was besieging Naples. The disease is reported (according to J. De Vigo, in December, 1494) to have broken out among the besieging army to an alarming extent, and in an exceedingly severe form.”—[Ziemssen’s Cyclopedia, vol. 3, p. 19.]

Our effort so far has been to question the views of the “unicists,” who maintain that syphilis has existed from remotest antiquity. We come now to consider the theory of the “dualists,” who believe syphilis to be a descendant of leprosy or some other disease; or was brought from America by the crews of Columbus. As regards the former derivation, Bäumlér writes: “An attempt has been made recently to establish the theory of the development of syphilis from leprosy. A. F. Simon calls it the offspring of leprosy, and claims, too, that under certain circumstances it may become its parent. What we see of the leprosy in the East and various other lands at the present day certainly bears but slight resemblance to syphilis; and it is noticeable, too, that in the commencement of the sixteenth century the lepers were evidently afraid of infection from those who were syphilitic (*leprosi nolebant habitare cum hoc morbo infectes*, says Laws, *Pristus*, Aphr; 1, p. 344); and that this was not groundless fear—that is, that lepra afforded no immunity against syphilis is shown conclusively by the inoculation tests of Danielssen.”—[*Ibid*, p. 12.]

Now leprosy is one of the oldest diseases known to medical history; it was never considered to be contagious, and it would be strange indeed if, all at once, it should have assumed this form! We do not believe that it did. For it is no more possible for a *special* form of disease to lose its identity and become transformed into a *specific type* of malady, entirely unlike it, than it is for figs to grow upon thistles or in any other impossible way. All analogy bears out this assertion.

If, again, as some writers claim that symptoms of leprosy were mingled with those of the plague, it would only seem to show—in our estimation—that the *lepers* were susceptible to the new poison, and were suffering and dying from it—and if, as some German writers hold, that lepra had begun to disappear before the appearance of the epidemic—the only conclusion available is, that the new disease helped to *hasten* its demise. But, be this as it may, whether leprosy had begun to disappear or not, of one thing we are satisfied, viz.: that the closure of the many thousand leper houses outside the gates of cities in France, not many years after the epidemic broke out, was due rather to the lepers dying from the new plague, than to its metamorphosis into and thus giving rise to it.

Jahr, before us, assumed this same position. He says: “Whatever may have been the pathological nature of that remarkable epidemic, it is certain that, at a period when the world was shaken by the mighty invention of a Guttenberg, and the old creeds and institutions began to totter to their foundations, the nations of Europe were visited by a terrible febrile convulsion, that swallowed up one of the most ancient plagues as by a volcanic eruption, and substituted in its place a new and desolating disease.” —[*Ibid*, p. 286.]

The theory of the colonization of syphilis from America yet remains to be considered. Although this is no longer to any extent held at the present day, yet it may be well to notice it here—by way of completeness—in passing.

Renouard says: “Unhappily for the veracity of the Spanish historian” (meaning Oviedo), “it is certain, from authentic testimony, that the pox broke out in Naples towards the close of the year 1493, or in the beginning of the following year, that is, two years before the arrival of the Spanish fleet. * * * If there were other proofs needed to invalidate the narrative of Oviedo, we might add that he exhibits in many places a manifest prejudice against the inhabitants of the New World. He likens them to the Canaanites, and the Spaniards to the people of God, so as to give a color of justice to the atrocities which he inflicted upon the unhappy Indians during his government.”

Other late writers have pretended that it was on the first re-

turn of Christopher Columbus that his sailors and soldiers carried into Europe the syphilitic infection; but this assertion falls to the ground, like the preceding, before a serious examination. In fact, it is known that on his return in his first voyage, this bold navigator was assailed by a tempest that forced him to put into Lisbon, where King John II. retained him seven days in the midst of continual festivals. Thence he made sail to Palos, where he landed in the course of the month of March, 1493. From this city he went by land to Barcelona, with eighty-two men of his equipage and nine Indians. There he met King Ferdinand, with Isabella and the whole court. After remaining some weeks at Barcelona, he started for Cadiz, to prepare for a second expedition. Now, at none of the points where he touched during his route, in none of the cities where he stopped with his retinue, did the slightest symptom of the venereal disease manifest itself for several years; while from the year, even, of his arrival in Europe, or the year following, numerous attacks of a venereal nature were observed in many and very distant places in Italy, France and Germany.”—[*Ibid*, p. 342.]

This brings us at length to the period of greatest prevalence of the famous epidemic, but before saying anything under this head, it may be well to state more clearly what is to be understood by the dual nature of the syphilitic poison, which is being so much discussed at the present day. Professor Bumstead says:

“I. The chancroid is entirely distinct from syphilis.

“II. The chancroid, however, *does not depend upon a specific virus of its own*, incapable of being developed *de novo*.

“III. The chancroid, in many cases met with in practice, is derived from a chancroid, but it may arise, especially in persons debilitated from any cause, from inoculation with the products of inflammation, either simple or syphilitic, and subsequently perpetuate itself from one individual to another as a chancroid.”—[*Venereal Diseases*, 4th ed.]

Bäumler says: “The poison of soft chancre may, under certain circumstances, be produced *de novo* without the intervention of the syphilitic poison.”

Professor Bumstead, in an article (*N. Y. Med. Record*, June 17th, 1876) criticising some of Mr. Hutchinson’s expressions of

views on this subject, asserts that the term "duality of syphilis" really signifies a duality not in syphilis, but in what had been known as syphilis and called by that name. Otherwise, he observes, we must adopt the ridiculous supposition that so-called "dualists" believe in two kinds of syphilitic virus, whereas they have simply maintained that there exists, independent of the syphilitic virus, another contagious principle giving rise to a local sore known as the chancroid. If Mr. Hutchinson intends to limit the power of producing the soft chancre to contagion with inflammatory products arising from *syphilis*, Dr. Bumstead considers him in error, since sores precisely similar to the chancroid have been produced by other inflammatory products. Mr. Hutchinson's view, however, that the chancroid, instead of being dependent upon a specific virus, incapable of spontaneous generation, is the result of inflammatory products, and hence that, if every chancroid now existing were exterminated, new chancroids would arise—this, Dr. B. thinks, has strong arguments in its favor, and may be looked upon as a step in advance, suggesting an interesting analogy with the history of gonorrhœa during the last fifty years. Finally, Dr. Bumstead declares his belief that the "dualism" still lives, and that Mr. Hutchinson is, in fact, one of its most advanced apostles.—[Helmuth's System of Surgery, 3d ed., p. 168.]

(To be continued.)

TRICHINÆ,

A LECTURE DELIVERED BEFORE THE STUDENTS OF THE
AMERICAN VETERINARY COLLEGE,

BY F. S. BILLINGS, V. M.

(Continued from page 58.)

PREVENTION.

The above remarks have emphatically indicated that some restrictive and corrective measures of protection are absolutely necessary. And the same should be energetically impressed both upon the people and upon hog raisers by the respective State governments through the Boards of Health, both State and local.

1st. Boards of Health should take means looking to the better education of the people in the principles of protective medicine, by which is meant a knowledge of the *preventible sources* by which disease may be induced.

2d. Boards of Health should investigate exact researches into the hygienic conditions under which swine are reared, and no means should be spared in the endeavor to discover the *real* source from which swine obtain their parasites.

3d. Continued examinations of rats in different parts of the country, at piggeries, and at places where no hogs are, or have been kept, should be instigated until this rat theory of infection is absolutely settled pro or con.

4th. As the rat-infection hypothesis is at present defended by able authorities, and as no absolute proof of its incorrectness at present exists, the *slaughter of rats* should be encouraged, and the laws relating to rat-killing modified, for the danger of infection *to man* by trichinous pork is not to be weighed for a moment with a sentimental sympathy for the pains a rat suffers in being killed by a dog.

5th. All sick swine should be peremptorily isolated from the healthy ones under the supervision of a competent (not empirical) and educated veterinary surgeon.

6th. All swine suffering from diarrhœa should not only be isolated, but separated individually. The greatest care should be taken in cleaning at least twice daily, the pens of such swine, of all fœcal masses and refuse.

(a.) The fœcal masses from such swine should be frequently subjected to microscopic examination.

(b.) On cessation of the catarrhal phenomena, whether motory disturbances appear or not, the musculature, tongue and muscles of the neck *should be harpooned*, and subjected to microscopic examination.

7th. All hog pens should be kept scrupulously clean, and the turning of compost heaps into hog pens, to be rooted over by the swine, should be forbidden by law.

8th. No contents of water closets, out-houses for human beings, or drainage from house-sinks should be allowed to enter hog pens on penalty of the law.

(a.) Zenker reports a case where twenty-three swine were infected with trichinae from consuming the drainage of a sink from a castle.

9th. Feeding the *offal of slaughtered swine* to other swine, cooked or uncooked, or having slaughter houses over places where swine are kept, should be forbidden by law.

10th. Competently educated veterinary inspectors should be appointed by the State Board of Health of each State, after having first passed a special examination in the principles of preventive medicine, to see that these various regulations (and others with reference to other as well as contagio-infectious diseases of animals) are strictly attended to.

Public feeling should be excited in this matter, and pork raisers led to feel it to be *their* duty to have their hogs examined before cutting them up for market. In fact, another regulation should be added to the above, viz.:

That no slaughtered hog should be allowed to be cut up until its flesh has been microscopically examined by one of the above named inspectors, and a suitable State brand of "Inspected for Trichinae," burnt upon the hams, shoulders, sides and cheeks.

THE MICROSCOPIC EXAMINATION OF PORK.

Numerous elaborate essays have been written upon this subject, but the entire process is so easy and simple that such extended labor may well be looked upon as useless.

Almost the first, and, at the same time, by far the most profusely infested muscular system, is the so-called "*pillars of the diaphragm*." These are to be always found as two small stumps of flesh situated immediately below the kidneys in the dressed hog when hung up to "cool out." If there is a single trichina in the organism it is to be found here. These portions belong to the trimmings, and are always to be had without in any manner disturbing the appearance of the hog.

Although a power of 15 to 20 diameters is sufficient to demonstrate the parasites to the proficient observer, it is still much better to use a power of 50 to 75 diameters.

Good microscopes for such a purpose are to be had from American makers for from fifteen to twenty dollars. If the

stand was fixed they might be shorter, and far more suitable to such purpose. A large table accompanying the microscope will be of advantage for such examinations.

A few slides, or object glasses, and some strong covering glasses, a pair of small curved scissors, and two teasing needles are all that is necessary to complete the outfit.

The next step is to take the piece of muscle to be examined, and if at all dried to make a fresh cut into its substance, then with the curved scissors cutting one, two or three thin slices lengthwise to the fibres, *i. e.*, with them, and with a needle place them on the object glass a little distance apart. The covering glass is then placed, adjusted and gently pressed upon them, with a slight rolling motion in one direction and back if necessary. This will invariably make the section thin enough for examination.

It is not necessary to change the glasses for each specimen to be examined. When one has a large number, ten or twelve specimens *can be accurately examined* before such a procedure is necessary.

To determine if the trichinæ still live, hold the object glass over the heat of a spirit lamp for a second, and then place it under the microscope, and they will frequently be seen coiling themselves in their capsules. It is better, however, to tease the preparations first, when individuals will frequently become freed from their capsules, and their movements can be better observed on the application of heat.

Salted pork is best examined by taking the cut specimens from the scissors and soaking them in fresh water for a second or two before placing them on the slide. They are pressed out much easier and thinner when such a procedure is resorted to.

OBJECTS WHICH MAY BE MISTAKEN FOR TRICHINÆ, OR NOT BE
RECOGNIZED AS SUCH.

It not unfrequently happens that the capsules of the parasites formed by the sarcolemma (or embracing membrane of the muscle fibres) becomes abnormally thickened, the parasites being dead within them. The capsules do not present exactly the same appearance that they do under normal conditions.

In other cases the calcification is of such a character as to change almost entirely the appearance of the capsules and contents.

In some cases cysticerci, or measles, perish and become calcified. But these formations are somewhat larger than those of trichinæ, and are often filled with a caseous mass. The "sacks of Rainey," or as they are sometimes called "Psorospermiaë," are elongated bodies, like the trichinæ, situated within the sarcolemma, the true nature of which, or their pathological importance, is not yet well determined. Some of the points distinguishing them from trichinæ are :

That by the latter the situation of the muscle fibre, or better, the entire plasma, sarcous element, is destroyed within that part of the sarcolemma which is included in the capsules of the trichinæ. By the psorosperms, however, it is retained, and only displaced by the object itself, limiting it on each side, and continuing directly from the poles.

Bruch, Virchow, and Leuckart have described peculiar roundish or oval masses of a whitish color, having varying dimensions, which sometimes appear in the flesh of hams, and which have been microscopically demonstrated to consist of an agglomeration of needle-like crystals. They fill the muscle-fibre to a variable degree without otherwise disturbing its structure, and disappear upon treatment with muriatic acid, the normal transverse striation again becoming apparent.

(To be continued.)

CASES DEPARTMENT.

ANGINA ANTHRACIS IN THE HOG.

BY G. S. AGERSBORG, D.V.S., VERMILLION, DAKOTA.

On the evening of the 2d of May I was summoned by Messrs. Thompson & Lewis to attend a sick hog at their stock yards. Mr. Thompson informed me that within the past twelve days he had lost seven hogs, all dying a few hours after being taken sick. On arriving at the yard I found a 200 pound fat hog lying

on his right side, grunting and sighing as if in great pain. The left ear was swollen to three times its natural thickness; the left fore leg stiff and flexed; the ear, as well as leg, deathly cold. The animal was made to walk, but had lost the use of the left leg, which was carried strongly flexed. Temperature, $105\frac{3}{5}$; pulse too fast to be counted; fæces hard and dry, and entirely filling the rectum; visible mucous membranes of a brownish red color; in the pharyngeal region a large tumor, which as well as the ear and leg was very tender on pressure; respiration accelerated and difficult; deglutition impossible. The swelling extended from the pharynx down to the sternum and the epidermis between the front extremities and over the whole thorax and abdomen of a reddish color. Diagnosis was made of some form of anthrax, and as treatment in my judgment would be of no avail he was left to himself.

Six o'clock the next evening found the hog still alive, but stiff all over, and unable to move; respiration much more difficult than the evening before; visible mucous membrane and proboscis of a dead leaden hue; color of epidermis changed to a leaden-purplish color. Temperature, $93\frac{2}{5}$.

Soon after the hog died from asphyxia. Post mortem, four hours after death, showed all the well marked symptoms of anthrax, and, furthermore, an extensive inflammation of the œsophagus from the pharynx down to the stomach, and covered in its upper two-thirds with heavy diphtheritic deposits. The parenchyma of the spleen was unusually broken up, parts of it even running out in the abdominal cavity.

The proprietors were recommended to burn the hog yards over and put no new arrivals in them; also to quarantine all animals on hand for a few days. The healthy hogs were immediately removed to new pens. Since then two weeks have passed and no more have been attacked.

The disease was probably brought in from the country with some infected hogs. In its spontaneous development I cannot believe. This form of anthrax, so far as I can learn, has never before been noticed in this locality, the apoplectic form, however, not being rare.

A TUMOR ON THE FIBULA.

BY J. P. KLENCH, V.S., STOCKTON, CAL.

On November 25th last I was shown a nice carriage horse, weighing about 1,300 pounds, and walking lame on the hind right leg. When standing still the horse kept the leg raised most of the time, and would not extend it nor bring any weight upon it unless as he was forced to move. On examination I found an enlargement of the synovial sac, located between the three anterior patellar ligaments, but there was neither heat nor pain. About two inches below the head of the fibula I noticed a tumor of the apparent size of an egg; it was hard, indolent, movable in all directions, and not causing any pain, unless it was pressed hard on the bone. There was no infiltration nor induration of cellular tissue on and around the tumor.

Diagnosis—The existence of this tumor brought to my memory a horse that I operated upon about 18 months ago for a like tumor, located in the muscular portion of the anterior extensor of the phalanges. That tumor was blistered and fired several times by ignoramuses, and had been existing for about two years. The horse was getting more lame, and the muscles of the femoral region had all disappeared and undergone a complete atrophy. Upon extracting this tumor I found it to be composed of muscular fibres, intermingled with calcareous deposits, and below the tumor a large pocket extending over the whole anterior surface of the tibia, which contained about one quart of thick white coagulum, which loosened all the muscles from their attachments.

Having this case in my mind I informed the proprietor of the horse that the lameness was caused by that tumor, which was most likely of a chalky nature; that only an operation could give us any hope of effecting a cure, as neither blister nor fire would ever absorb it, and that I had yet a great doubt as to a final cure of the horse.

To satisfy the personal wish of the proprietor, I applied a blister, first on the tumor and the synovial enlargement which he thought was the cause of the lameness, and one month later

the horse came back lamer than ever; the muscles of the crural and gluteal region partly atrophied, the synovial enlargement increased, and the leg always raised.

The horse was cast down and a crucial incision made on the tumor. After having dissected the subcutaneous cellular tissue, and cut a portion off the tibial aponeurosis (*aponeurose jambière*) and the membrane of the fascia lata, I passed, with the greatest difficulty, a strong thread through the tumor that would enable me to pull it in different suitable directions. The tumor was soon entwisted, and the horse was sent home, walking away about as well as before the operation, and the proprietor told to clean it once a day.

On subsequent information I learned that the horse did not stand on the foot for over one week. But three months later I happened to see the patient again. He was lamming a little—less when trotting than in walking, and when standing still he favored the operated leg, resting it on the toe. This lameness might be attributed, I think, to the loss of a portion of the membrane of the fascia lata and the tibial aponeurosis, as it did not seem to be the expression of any pain.

The tumor was about $2\frac{1}{2}$ inches long, $1\frac{1}{2}$ inch wide, and about 1 inch thick. It was hard to cut, grating under the knife (*criant sous le tranchant du bistouri*), and consisted of cretaceous deposits, intermingled with partially indurated cellular tissue, so as to give the whole mass a marbled color. These chalky deposits were kept soft by the animal temperature and the circulating fluid; but one week after the operation the tumor had shrunk down to less than half its size, the chalky deposits being the only substance left. The mass was as hard as stone, and impossible to attack with a knife.

POTT'S FRACTURE IN THE DOG.

PRESENTED TO THE N. Y. PATHOLOGICAL SOCIETY BY A. LIAUTARD, M.D., V.S.

GENTLEMEN—The specimen I present for your examination this evening is one which I think can be considered as one of Pott's fracture in the dog.

The history of the case is as follows:

In January last a lady of this city brought me for treatment, or rather to destroy, a little female pug about six weeks old. The little fellow was suffering with rachitis—her legs bent and deformed; her body emaciated; her head unusually large; her eyes prominent; and she was almost unable to stand up, or to take any nourishment.

She was, however, so well bred that I felt interested in trying to save her. I had her put under strong feeding, meat (raw), beef extract, lime, salt, phosphates, &c. In a short time she began to improve, and about the beginning of March she had developed into a handsome little beast, apparently in perfect health, with the exception of an eruption of eczema all over her body, the result, undoubtedly, of her mode of feeding.

One evening, about the first part of March, she was, while sleeping on a lady's lap, taken suddenly with an epileptic fit. She fell down, and did not get over her fit until late in the evening, from which time for forty-eight hours, she remained entirely paralyzed, lying down and unable to move, and was fed and nursed in that position. On the third or fourth day she began to recuperate and get stronger on her fore part. She raised her head, then moved one fore leg, then the other, and in about a week was apparently entirely over her loss of power, except in her hind quarters, which from the dorso-lumbar articulation was entirely powerless, her paraplegia being well marked from the loins backwards. She was placed under nervous stimulants, nux vomica, electricity, etc., but with no other result than that her legs became sensitive to pinching and pricking, and she could move them when they were irritated; she could even carry them to her mouth and bite them. But she was entirely unable to get up, and, if raised, she could not stand. When held up, her vertebral column presented a normal direction from the neck backwards as far as the posterior part of the back, but at that point it suddenly rose and formed a curvature upwards, and from that point the paraplegia began.

After about four weeks of vain attempts at treatment, she was chloroformed, and a post mortem made.

The intestines presented a number of lumbricoids, commonly

met in young dogs, and often the cause of epileptic fits, but with that exception all the organs were found healthy. The interesting lesion is in the appearance of the vertebral column. On examination you will notice the shape of the bony column, and also the fact that a fracture had taken place at the dorsal region. The eleventh vertebræ has its body crushed, and no apparent work of repair is to be detected, even after over four weeks of treatment since the accident happened—a condition which is certainly due to the diseased state of the bony system.

FRACTURE OF THE FOREARM.—RECOVERY.

BY HENRY SHAFER, FARRIER, THIRD CAV., U. S. A.

[The following report was made to the Quartermaster General in Washington, who has kindly furnished us with a copy of it.—Ed.]:

On March 1st, 1882, a horse for which Captain George A. Drew, 3d Cavalry, is responsible, had by some accident fractured the forearm of the right leg. The horse was put in slings, and after the fever subsided the leg was set by extension and counter extension, after which the leg was encased in plaster of Paris. Owing to the horse being in good health, and the fracture being transverse, a complete cure has been effected. To-day the horse is as serviceable as he was before the accident.

ENORMOUS DEVELOPMENT OF THE CAPSULA ADIPOSA ENFOLDING THE LEFT KIDNEY OF A STEER.

BY JULIUS GERTH, D.V.S.

On the 27th day of June, 1881, while passing through Centre Market, in Newark, N. J., my attention was drawn to a large mass of so-called kidney fat enfolding the left kidney of a large steer attached to a hind quarter. Bystanders judged that it would measure about $3\frac{1}{2}$ feet longitudinally and at least 2 feet in diameter. Unfortunately, no rule was at hand with which to obtain exact measurement. At my request this mass of solid

and apparently healthy adipose tissue was removed from the quarter and placed on a scale. It weighed one hundred and eighteen and a half ($118\frac{1}{2}$) pounds, including the kidney. The kidney, which was deeply embedded, weighed three (3) pounds, and was normal in appearance. As far as could be ascertained, the animal did not suffer any discomfort during life. The only observable symptom was a distended abdomen. A butcher boy who had seen the steer alive greatly amused the surrounding crowd by innocently remarking that when he first saw the animal he was somewhat puzzled by the appearance and thought that the steer might possibly be in calf! The right kidney with its enfolding adipose capsule was perfectly normal in size, appearance and weight. Would some member of the profession kindly give information as to the cause of this interesting development?

AN AGED SOLIPED.

BY JOHN B. GARRISON, M.D.

The specimen represents the superior and inferior incisor teeth of a mule, which, from authentic accounts, had reached the advanced age of 42 years and 8 months.

The teeth present a remarkable appearance, for, while in their general contour they indicated advanced age, their disposition is peculiar.

On the lower jaw, one of the nippers, the right, was missing, it having been broken off short, the piece imbedded in the alveolus remaining. The other presented the usual appearance of an incisor tooth in advanced age, it being flattened from side to side and projecting horizontally outward. Nothing remarkable was noticed in the dividers, which closely resembled the remaining nipper. The corner tooth of the right side presented nothing unusual, while that of the left was double the length of the latter and inclined outward, having a concave external border. Taking the inferior incisor teeth as a whole, they projected horizontally outward, so that their grinding surface was continuous with the superior face of the body of the bone.

In the upper jaw the incisors were very long. The right nipper inclined toward the left side, and at its free extremity was in apposition with the left divider. The left nipper had evidently been broken off, but this abnormal deviation completed the grinding surface. Part of the anterior face of the left nipper remained, thus filling up the triangular space between the right nipper and left divider. At the base of the right nipper was what appeared to be a rudimentary tooth, but this was evidently nothing more than a fragment of the tooth which had been broken lengthwise. The left divider and right corner tooth presented nothing peculiar, except their great length. The left divider was broken off short, the root remaining in the alveola cavity.

AMERICAN VETERINARY COLLEGE.

HOSPITAL RECORDS.

BY FRED. SAUNDERS, D.V.S., HOUSE SURGEON.

TRUE DISLOCATION OF THE LEFT PATELLA.

On the 29th of April, a large brown gelding was brought to the hospital in the ambulance of the Society for the Prevention of Cruelty to Animals. The history of his present condition was that he had been in that condition for over forty-eight hours, with the stifle out. He was recognized as a patient who had already been brought under the observation of the House Surgeons for a similar trouble, which had readily subsided by itself, and not returned since.

This time, however, with all the symptoms of that lesion, the peculiar extended condition of the left hind leg, the impossibility of flexion and the interfered action, the diagnosis was easily made of dislocation of the patella. The animal was with difficulty placed in a box stall. After hard manipulation of the parts and attempts at reduction, the bone was slipped into position, and the animal freed from his trouble. In about an hour, by the action of the animal in turning on the left leg, the same condition returned, to disappear again upon the usual manipulations. This

constant displacement and replacement was repeated several times, until the following day, when it became first difficult, then impossible, to reduce it. Hot fomentations and chloroform liniment were then prescribed; it was, however, impossible to return the bone to its place.

On the 5th of May a severe blister was applied over the stifle, extending well around the joint, and embracing, as much as possible, its whole surface, and even beyond it. For twenty-four hours the leg maintained its condition, extended backwards as soon as the slightest motion forward was attempted. On the following morning, the bone, which had once returned to its position, was found again out of place. The parts were swollen, and thick exudation had taken place. The animal was left alone, and during the day was found using his leg as well as ever, with the exception of the slight inconvenience that the blister occasioned.

On the 13th of May the blister was washed off, and the animal turned loose in a box stall. He, however, showed considerable lameness; and, though the scabs of the blister were almost all gone, and the swelling had disappeared, when walked, he would move with a lame step, slightly dragging his toe.

He was discharged on the 18th.

The object of the report is to add a point to the history of the true dislocations of the patella, and to show its difference from the pseudo-dislocation, as the result of excessive muscular contraction of the anterior crural region. In this case, the history of a previous similar attack, the difficulty of permanent reduction, the resistance to treatment first, the lameness persisting nearly three weeks afterwards, seem to me an evidence of true dislocation, as these symptoms and conditions would not have been present had the difficulty been only mechanical; that is, the catch of the patella over the superior segment of the internal border of the femoral notch, as described by M. Chuchu in his discussion before the Central Society of Veterinary Medicine of Paris.

REVIEW.

REPORT OF THE TREASURY CATTLE COMMISSION.

This report comes to us in a volume of nearly 140 pages. The main objects of the Commission were to ascertain in what localities and States contagious pleuro-pneumonia exists; to suggest the measures necessary for the eradication of this plague, and to favor our export cattle trade by making known the parts of the United States that are and have been free from this disease. The history of the lung plague is given at length; the manner of its spread from place to place and from one country to another; the reasons why the West remains uninfected, and rightly concludes from the unvarying absence of pleuro-pneumonia, apart from contagion, that a perfect guarantee can be given of its permanent eradication by the adoption of measures advised. The "recommendations" for federal action, and action by the different States would be well to be carried out. Inoculation is not advised in the particular case of the United States, since it seems so patent to every thinking person that *eradication* of this plague is possible.

The "summary" expresses very clearly the mind of the American veterinary profession, and we owe it to the Commission to express our appreciation of their work and to guarantee our assistance in endeavoring to rid our country of this pestilence, while it is so restricted, and consequently easily dealt with, had we the necessary legislation to aid us. The book also contains a number of reports of inspections in different parts of the country, and concludes with the laws that have been passed by the different States. The Commission has done its work thoroughly, and deserves the thanks of the profession.

A. E.

REPORT OF THE MINISTER OF AGRICULTURE OF THE DOMINION OF CANADA FOR 1881.

This report embraces arts and agriculture, census and statistics, patents, copyrights, quarantine, immigration, criminal statistics, etc., etc., besides all which it also contains matter of

special interest for the veterinary profession in the reports of Prof. D. McEachran, Chief Inspector of Stock. It is to be regretted that we are so very far behind Canada in our manner of dealing with the contagious diseases of animals. Canada has during the past year instituted a rigid quarantine of ninety days upon all animals imported. The principal quarantine station is at Point Levis. It embraces about fifty acres of land, and is enclosed by a board fence six feet high. There are distinct enclosures for the segregation of the various animals.

This rigid veterinary inspection, under proper legislation, enables Prof. McEachran to report that with but a single exception no contagious diseases were reported during the year.

Vaccinia, or cow-pox, occurred in a Holstein herd, imported from Antwerp, while in quarantine. At the end of ninety days they were released in a perfect state of health.

The importation of sheep into Canada was larger than that of last year. Of swine, but few are imported, as hog raising does not seem to be profitable in the Dominion.

Aptha, in a mild form, is reported as affecting sheep.

The injustice of prohibiting the importation of cattle from the United States, and particularly from the Western States, even under quarantine regulations, is referred to, with suggestions to modify existing regulations and allow such importations.

Tuberculosis occurs in isolated cases, but such animals are either killed or not allowed to breed.

The report also contains an article from the *Veterinary Journal* by M. Pasteur, on "The Germ Theory of Disease and its Practical Importance."

The preliminary report of the Pictou cattle disease is perhaps the most important part to veterinarians. It embraces, besides Prof. McEachran's remarks, the pathological report of Prof. Osler, the analytical report of Prof. Lawson, and the statistical report of Dr. Wm. McEachran. After a more extended clinical experience with this disease it is to be hoped that Prof. McEachran may be able to give its exact pathology, causes, etc. Measures for the suppression of the disease have been recommended,

which if strictly adhered to must, we think, largely decrease the mortality.

Other matters of much interest make the Canadian Agricultural Report for 1881 a desirable book for the library of the veterinarian, as well as the agriculturist. A. E.

CORRESPONDENCE.

IGNORANCE OF ENGLISH VETERINARY QUALIFICATIONS IN AMERICAN SPORTING JOURNALS.

Editor Veterinary Review :

DEAR SIR.—In the *Turf, Field and Farm*, date of April 7th, in answer to an inquiry as to my qualifications, that paper asserts that I figure among the Scotch graduates who, on the amalgamation of the Highland and Agricultural Society with the Royal College of Veterinary Surgeons of England, obtained the R.C.V.S. diplomas *by courtesy* and payment of *certain fees*. This arrangement took place about one year ago, and the R. C. V. S. Register for 1882 states distinctly that they got their diplomas under those circumstances. I wrote to the veterinary editor, explaining his misstatement, and desiring a correction, viz.: that I graduated as a M.R.C.V.S. of London, England, by oral, written and practical examination (as my diploma from that institution clearly states), on the 23d December, 1874, *just six years before any Scotch graduates were admitted by courtesy*. He did not even grant me the courtesy of a reply. About eight months since, whilst practicing at Lancaster, Penn., a similar answer in the same paper did me much harm. The local quacks took advantage of public ignorance on this subject, and quoting the *Turf, Field and Farm* as their authority that I was a pretender and not what I claimed to be, viz.: a M.R.C.V.S., London, England. I wrote the editor; I even referred him for explanation to a respectable gentleman in New York, viz., Mr. Lockhart, M.R.C.V.S. But no—his fiat had gone forth; he refused to retract one inch. I then forwarded my diplomas (four in number), including that of the Royal College of Veterinary Surgeons

of England, and even then, in face of my diploma—which clearly states that I was examined by their Examining Board—this gentleman would not do me justice. I even asked him to refer it to some other V.S. But no! he was infallible, according to his own ideas. His very correspondence with me then contained misstatements as to their dates, particulars, etc. I do not mean to doubt the gentleman's honesty, but certainly, to put it in its mildest form, it was very unreasonable and suspicious on his part. Now, sir, for the sake of graduates who may again be submitted to such criticism, and from such a public source, I give his statement relative to the nature of my qualifications a flat, emphatic contradiction, and assert distinctly that I am a M.R.C.V.S. of England, by examination of their Board of Examiners. I do not mean to infer that those gentlemen who did obtain their M.R.C.V.S. since 1880, and by purchase, may not be better veterinarians than I am; but a public statement that is incorrect requires a public denial, and as the *Turf, Field and Farm* refused to undo the mischief they did me, more particularly in this city, where I have just purchased a large and pecuniary practice, I am compelled to resort to your paper to right myself. If the Register of the R. C. V. S. for the past eight years (since I graduated), and containing all their graduates' names since that institution commenced (which I also forwarded to the *Turf, Field and Farm*), is not sufficient evidence as to my qualifications, I am willing to forward them to you, sir, or any graduate or graduates who will do me the justice of an unbiassed perusal.

I am sure I will be pardoned when I state that persons, more particularly those who hold the position of a public editor, and of a sporting paper, ought to be very careful of making rash statements, more particularly when such statements may do incalculable injury; and if such inquiries as those made about me are made upon subjects which they are ignorant of, their egotistical knowledge could be dropped for the time being, to be again assumed when reference had been made to some better informed person. I have not the power of preventing inquiries being made in any paper relative to my degrees, but I maintain that no journal has authority or liberty to misrepresent me in any way, with-

out at least granting me a chance of correcting them in their error. A statement in your much esteemed paper may, perhaps, remove the mist which has clouded the faculties of the editor of the *Turf, Field and Farm*, and prompt him to try to undo at least a portion of the injury he may have done me here by a public statement of the true facts. I want nothing but justice.

Sincerely,

M. J. TREACY, M.R.C.V.S.,
London, England.

INFLUENZA OR CELLULITIS?

To the Editor of the Review :

Having noticed a discussion between Messrs. Myers and Holcombe, regarding the late epizooty, I beg to record my experience with it in the REVIEW.

I have seen neither cellulitis nor anything resembling it occur as a symptom, complication or sequel in any of the horses or mules that have come under my notice in the Third Cavalry, or in the Quartermaster's Depot, Fort D. A. Russell, Wyoming. But I have seen what I have been taught to consider as well-marked oedema, the result of passive congestion of blood in the capillaries of the limbs, etc.

I had two horses die of the disease commonly termed "pink-eye," in which I recognized the disease known in the profession as epizootic influenza, minus *any* complications whatever, and I will relate the history, symptoms and post-mortem appearances of the cases.

Toward the end of December last I was called to see three horses in Troop G, Third Cavalry, said to be suffering from "pink-eye." I visited them and found two of them in a very low condition, they having partaken of no solid food for a long time, having been on a trip and just returned.

I asked the men who had ridden them how long they had been sick; they told me one horse (belonging to a non-commissioned officer of the troop) had been sick about eight days, another one five days, and the third one but one or two days.

The first horse died shortly after I saw him; I gave him no treatment, for he was beyond the influence of medicines. The third horse recovered quickly under the usual treatment, while the second one died, after lingering for a week or more, during which time I had an opportunity of closely watching the disease and minutely observing *any* changes that might take place.

When I first saw this case the limbs were not swollen. The respiration was labored; pulse quickened and weak; temperature 106, the eyelids swollen, conjunctiva injected, throat sore, a greenish discharge from the nose, vesicular murmur in the lungs and palpitation of the heart. On the following morning the limbs were swollen, unequal in temperature, and the murmur in the lungs much increased. He remained so all day, and about ten o'clock at night went down and seemed to sleep. He remained down all the next day until near evening, when he arose of his own accord, but seemed very weak, staggering around the stall. The next morning he was standing, and ate his breakfast as he had done all his meals since coming under my care. Toward noon he again went down, and seemed to have lost his senses entirely. He continued in this state until he died on the evening of the following day. Having made a post-mortem examination on the horse that died first, I concluded to do so in this case also, and found the general appearances closely resembling each other.

I found the trachea of a greenish-red hue, and in places covered with a watery lymph; the bronchial tubes were affected in the same manner. The lungs were œdematous, congested and filled with black blood. In the lung of the horse that died first were traces of suppuration. The liver, in both horses, was œdematous. On removing the integument of the limbs, I found quite an amount of watery exudate in the cellular tissue under the skin, etc., but neither in limbs or internal organs did I find anything to remind me of cellulitis; and I am of opinion that this serosity was simply the result of a passive congestion.

It is well known that influenza is a specific febrile disease, the result of a blood poison, not necessarily contagious, primarily affecting the mucous membranes of the respiratory tract, and manifesting itself by symptoms of passive congestion of these parts, accompanied by a typhoid or low form of fever.

Now I believe "pink-eye" to be an *epizootic form* of this disease and, judging from my experience, can see no radical difference between them. In every case that I have had, in which the symptoms were at all well marked, they were more or less identical with those I have seen in sporadic influenza.

I therefore think the swelling of the limbs, etc., in my cases, was due, not to *cellulitis*, but to passive congestion, caused by a damming back of the blood of the venous system, and imperfect æration of that blood, due to *congestion* of the *lungs*, and resulting in a transudation of the normal serosity into the surrounding parts.

To conclude, I have never seen a *bona-fide* symptom of cellulitis proper, either in sporadic or epizootic influenza.

Very respectfully,

Your obedient servant,

C. L. HINGSTON, M.R.C.V.S.,

U. S. Third Cavalry.

FORT D. A. RUSSELL, WYO., May 17th, 1882.

COLLEGE COMMENCEMENT.

ONTARIO VETERINARY COLLEGE.

The winter exercises of the institution were brought to a close in the large lecture room of the college. Dr. Smith, the Principal, occupied the chair, and Mr. Duncan discharged the duties of Secretary. Among the gentlemen in attendance were Hon. Adam Crooks, Minister of Education; Drs. Barratt and Thorburn, lecturers at the college; Mr. Grange, of the Agricultural College, Guelph; Mr. Coleman, of Ottawa; and the President of the Ontario Veterinary Association. Over one hundred students and graduates were present to take part in the proceedings, which were of a most enjoyable and enthusiastic character. Letters of apology and regret were read from the Hon. O. Mowat, Premier of Ontario, and from his Worship Mayor McMurich.

The following is a list of the students who graduated this year :

W. S. Bell, Kars, Ont.; L. D. Blanchard, Mount Eaton, Ohio; H. G. Borneman, Clayton, Pa.; J. L. Brodie, New London, Iowa; G. W. Burt, Lynnvalley, Ont.; T. J. Claris, Buffalo, N. Y.; R. C. Clark, Wellesley Village, Ont.; J. N. Cook, Glanford, Ont.; S. J. Cottam, Edinburgh, Scotland; T. Bent Cotton, Mount Vernon, Ohio; W. A. Dryden, Tavistock, Ont.; F. Goulding, Richmond, Mich.; G. H. Hall, Chatham; J. Hodgins, London, Ont.; J. D. Johnston, Wahoo, Nebraska; J. Lawson, Acton, Ont.; W. G. Lyons, Cheltenham, Ont.; Alex. McDonald, Cobourg, Ont.; J. G. McNally, Lynnvalley; W. McLain, Nanticoke, Ont.; W. Parkins, Beeton; C. A. Pierce, Creston, Illinois; A. Porteous, Simcoe, Ont.; J. Price, Pine Lexington, Penn.; J. H. Reed, Georgetown, Ont.; W. T. C. Scanlon, London; C. L. Smith, Silver Cliff, Colorado; H. H. Sutherland, St. Francisville, Ill.; B. F. Swingly, Oregon, Ill.; A. Tanner, Drayton, Ont.; W. Tanner, Mount Forest, Ont.; F. A. Thomas, Paisley, Ont.; L. Vandervoort, Trenton, Ont.; A. A. Walker, Wingham, Ont.; J. A. Waugh, Pittsburgh, Pa.; W. J. Waugh, Pittsburgh, Pa.; A. E. Wessel, Wooler, J. Whytock, Teeswater; T. Wrigglesworth, Georgetown; D. P. Yonkerman, Cleveland, Ohio.

An address of a highly complimentary character was delivered by the Hon. Adam Crooks, who spoke of the excellent work which was being done by the college, in the success of which his colleagues of the Ontario Government took a deep interest. It afforded him the greatest pleasure to be called upon to take part in the presentation of prizes to the students. He resumed his seat amid applause.

Addresses of a similar character were delivered by Prof. Buckland, Prof. Barratt, Prof. Thorburn, Mr. Wade, and other gentlemen, each of whom bore testimony to the good work which was being done by the college.

A life-size portrait was then presented to Dr. Smith, by former graduates of the college, as a mark of esteem for him as Principal. It was accompanied by the following address:

To Prof. A. Smith, V.S., Edin., Principal Ontario Veterinary College, Toronto :

*Dear Sir :—*We, the undersigned, graduates of the Ontario Veterinary College, desirous of testifying to our appreciation of your valuable services in the cause of our profession, take the present opportunity of expressing, in this public manner, a token of our feelings in regard to yourself.

To you, and your indomitable perseverance, is due the high standing of veterinary science in this Province, and but for your efforts, we feel convinced that the college, of which you are the distinguished Principal, and to which we look with pride as our *alma mater*, would not to-day occupy the position it does, and might not indeed have an existence.

For many years past you have unselfishly devoted your time and talents to the development of our profession; and, notwithstanding the many obstacles you have encountered, you have overcome them, and made for yourself a name and position which we shall always remember with satisfaction.

Some of us have not yet forgotten the state of veterinary science in this Province before your time. There was then no system or educational training to fit men for the practice of a profession which, from the very force of natural causes, is one of the most difficult of the healing art. The whole science was in the hands of men who had none of the advantages of thorough instruction, and, in too many instances, they were wholly ignorant of the rudest elements of veterinary knowledge. This is now changed, and we have ample means of training students, of furnishing them with a practical knowledge of their calling in life, and we can boast of a system of instruction and a dignity of purpose second to none of the other learned professions.

To you, Sir, do we give the well-deserved credit for all this, and we do not flatter you by an idle term when we say that, in view of the result and the extent of your labors, you are, indeed, the pioneer of veterinary progress in Ontario.

As a public recognition of the valuable services you have rendered, we, therefore, beg that you will accept this portrait of yourself, accompanied in this by many kind remembrances of

your courteous manner and careful instruction as our Principal, as well as with many hopeful wishes for your future happiness as our friend and counsellor.

Signed on behalf of the graduates.

I. H. WILSON.

I. S. CEASER.

J. S. DUNCAN.

C. H. SWEETAPPLE.

E. A. A. GRANGE.

WM. COWAN.

A. O. F. COLEMAN.

Toronto, March 31st, 1882.

SOCIETY MEETINGS.

NEW YORK STATE VETERINARY SOCIETY.

The regular monthly meeting of this Society was held at the American Veterinary College on Tuesday, May 9th, 1882, at 8 o'clock P. M., with the vice-president, Dr. Chas. Burden, in the chair.

A fair number of members responded to the roll-call, after which the minutes of the previous meeting were read, and, after some alterations, accepted.

The President, Dr. A. Liautard, then arrived and took the chair.

The Committee on Revision of the Constitution and By-Laws reported.

A motion to have this report printed and a copy sent to each member of the Society as early as possible, and that a special meeting be then called to consider the report, was seconded and carried.

The Committee on Nominations reported favorably on Drs. W. S. Devoe, J. S. Kemp, Jr., and Fred. Saunders, and those gentlemen were elected unanimously to membership.

Various other committees reported progress, after which Dr. C. C. Cattanaeh read an interesting paper on purpura hæmor-

hagica, in which he, after referring to the symptomatology, spoke of the causes, in his experience, as always being the working of horses after an attack of influenza before they were convalescent, or in cases where they were not properly treated for that disease and where the drainage and ventilation of the stable was bad. He described the post mortem lesions of purpura, and then gave his plan of treatment as follows:

“I have had very good success with the use of iodide of potassium in combination with sulphate of iron, which I gave in drachm doses of each, twice daily. I also gave whiskey in pint doses three times a day in a pail of cold water, which the animal will drink with a relish. To each of these doses may be added one half ounce of both chlorate of potassium and nitrate of potassium. If the swelling appears on the head I apply comp. tinct. of iodine every three or four hours, which has a most wonderful effect in reducing the enlargement. The nose ought to be sponged out at least every hour with tepid water, to which has been added a little salt. When the animal begins to convalesce, tonics are necessary. I have found iron combined with arsenious acid the best; say one-half drachm of the former to three grains of the latter, twice daily. Sloughing is very frequent in purpura hæmorrhagica. I have had cases where the flesh actually dropped off in chunks, and in one particular case all the muscles inside of the near hind leg came away, exposing the femur. A mild solution of carbolic acid I have found the best dressing, or when the healing process is obstinate, a solution of nitrate of silver may be applied occasionally with good results.

A very bad form of this disease is where the animal has a sore throat, and has difficulty in swallowing. In such cases I have the throat swabbed out with a sponge dipped into a saturated solution of chlorate of potassium three or four times a day. With regards to the animal's diet, I allow him to have whatever he will eat, and prefer him to have the most nourishing food in the smallest compass. When the animal refuses all food, I find the whiskey drink of the greatest value, as it not only nourishes the animal, but promotes an appetite.”

In the discussion that followed, Dr. Cochran stated that he

had frequently performed tracheotomy to advantage. Dr. Hanshew said that he had met with little elevation of temperature in the cases he had treated, and recommended the use of chlorate of potassium and sulphate of iron in the treatment. Dr. Coates questioned the value of applications for the removal of the external swellings, and considered that when these swellings leave rapidly œdema of the lungs follows.

Dr. Robertson described his last case of purpura, in which there was considerable elevation of temperature, but the case was complicated with inflammation and gangrene of the lungs, besides bowel trouble. The discussion then came to a close.

Dr. L. MacLean stated that he had inoculated a horse with the nasal discharge from the suspected case of glanders which he reported at the last meeting, but with no effect.

Remarks being then made by a few members present as to the action of the Board of Trustees of the American Veterinary College, in having an annual subscription, by which privileges are granted to the subscribers at the expense of the private practitioners, it was moved by Dr. McLean, and seconded by Dr. A. Liautard, that the Secretary be directed to write to the Board of Trustees of the American Veterinary College and call their attention to the propriety of doing away with said subscription. Carried.

Dr. Robertson kindly offered to read a paper at the next meeting of the Society.

Motion to adjourn was then carried.

H. T. FOOTE, M.D., V.S.,
Secretary.

OBITUARY.

ERSKINE MASON, M. D.

The Executive Committee of the Board of Trustees of "The American Veterinary College" issued the following preamble and resolutions upon the death of Prof. Erskine Mason, A.M., M.D.,

WHEREAS, In the death of Prof. Erskine Mason, A.M., M.D., the Board of Trustees of the American Veterinary College have to mourn the loss of an associate trustee but just re-elected to his second term of office.

Resolved, That by his death we lose the co-operation of one whom we have learned by long association to regard as a large hearted, liberal minded and conscientious man.

Resolved, That as citizens, we feel that the community has lost one whose sterling integrity, faithful discharge of duty and professional ability had rendered his life an ornament to his profession.

Resolved, That we tender to his bereaved family our sincere sympathy in their affliction.

Resolved, That the American Veterinary College be closed on the day of the funeral, and that the Trustees and Faculty of the College attend the same.

Resolved, That a copy of these resolutions be forwarded to the family of our deceased fellow Trustee, and that the same be printed in *The New York Medical Record* and AMERICAN VETERINARY REVIEW.

By order of the Executive Committee.

SAMUEL MARSH, Esq.,

Pres't of the Board of Trustees.

FANEUIL D. WEISSE, M.D.

DANIEL M. STIMSON, M.D.

HAMILTON BUSBEY, Esq.

Dated April 15, 1882.

NOTICE.

The examination for Demonstrator of Anatomy of the American Veterinary College, will take place on June 10th, at the college building, at two o'clock p.m. Candidates will send their names and credentials to the Dean of the Faculty.

MUSEUMS AS EDUCATIONAL ADJUNCTS TO MEDICAL COLLEGES.

BY M. JOSIAH ROBERTS.*

Respect for, yet absolute independence of, authority.

Prof. Burt G. Wilder (7).†

As a man is a being of action, it is demanded that his education shall be a preparation for action.

E. L. Youmans, (24).

Properly preserved and displayed specimens are essentially "scientific apparatus."

Prof. W. H. Flower, F.R.S., (22).

Well-arranged museums of every kind are now an educational necessity in every highly civilized State.

Prof. W. Boyd Dawkins, (9, 78).

The subject of Natural History Museums, as means of affording general instruction to the public, of advancing the spread of biological knowledge, and of enabling scientific men to pursue their study more advantageously, has from time to time received considerable attention from such men as Agassiz, Huxley, Flower, and others, but I am not aware that the subject of *museums as educational adjuncts to medical colleges*, has ever received much, if any, attention; at least it has not been brought before the profession with that prominence its importance would seem to merit.

That I may not be considered as belonging wholly to that class of individuals whom Galileo was so fond of calling "paper philosophers," I would state that I take this occasion to present a few observations which have been suggested by some practical experience as a collector and preserver of specimens of natural history. The views of leading medical men and naturalists, having a direct bearing upon this important subject, are also given, so far as I have been able to obtain them.

I shall not presume to treat the subject comprehensively, but will only consider some of its more significant points, among which are the following:

I. Of what advantage is a well-arranged and properly managed museum to a medical college?

II. What is the most desirable form of a museum building, or of rooms devoted to museum purposes, and of the cases in which objects are to be displayed?

III. What should a medical museum contain?

IV. How should the contents of a museum be arranged?

V. How can the material thus collected be made most useful?

VI. Management.

VII. Conservator of a museum.

* In justice to the author, it should be stated that this essay was written in December, 1877, and is now published without revision or additions. It is a graduating thesis, and received honorable mention by the Faculty of the Medical Department of the University of New York at its thirty-seventh Commencement, February 19, 1882.

† The numbers refer to a list of works and papers at the close of this article.

VIII. Collecting specimens.

IX. Preservation of specimens.

X. Financial support.

I.—*Of what advantage is a well arranged and properly managed museum to a medical college?*

1. It forms an attractive feature, favorably impresses visitors, and aids in the education of the public mind.

That a museum is attractive, is shown by the fact that when accessible to students, they frequently resort to it for the purpose of examining specimens in order to solve some question which has arisen in their minds; or for the purpose of gaining a more general idea of natural objects, or perhaps for no other purpose than to "kill time" while waiting for the next lecture.

In this latter instance, some might argue that no good could result from a visit to a museum. But opposed to this view there are numerous cases (for a remarkable one, *vide* 12)* where a student or other individual has strolled into a museum with no other object in view, and being attracted by some "curious thing," has paused a moment to inspect it more closely. Objects close at hand have stimulated further observation, and thus a series of examinations have been instituted, which, affording the individual a certain amount of pleasure, ultimately led him to a systematic study of natural objects and their vital phenomena.

"He has gained a new sense—a thirst for natural knowledge. * * * * If his intellectual capacity be limited and ordinary, he will be a better citizen and happier man; if in his brain there be dormant power, it may wake up to make him a Watt, a Stephenson, or a Miller." †

For further support of this view, the following is quoted from Prof. W. Boyd Dawkins, F. R. S.:

"Visitors to the British Museum, however frivolous they may be, leave it all the better for having been there. It is impossible that they should not carry away some sort of an idea, which otherwise would not have occurred to them, even if it be but the recognition that outside their daily lives there is a world of knowledge, vast and indefinite, but real and tangible." (12, 98.)

The Bishop of Manchester is credited with having said: "It is impossible to disguise from ourselves the paramount importance that public opinion should be rightly informed, rightly instructed and rightly directed." (10). Prof. Dawkins in a recent letter to *Nature*, writes: "Few of the many subjects now pressing themselves on the public attention are more important than that of museums, of the work which they are doing now in general education, and that they may reasonably be expected to do in the future." (9, 78).

"The value of museums cannot be over-estimated, for every lover of natural history cannot be a collector; but every one in the full possession of his faculties can observe, so far as he has the power of seeing, and if he cannot examine the

* The numbers refer to a list of works and papers at the close of this article.

† NOTE.—Most, if not all the quotations in this article, touching upon museums, have reference more especially to general natural history museums than to medical museums. But I have taken the liberty to quote them, because that which is true of the former will also be true, in the main, of the latter.

wide field of nature for facts, he will at least examine the proofs of them in the museums, if at hand." (Watts, 8).

The desirability of favorably impressing those who visit a college, is a matter of no small importance. If favorable impressions are created and carried away, they will not only add to the renown of the institution, but will be of material value by swelling the number of students and thus increasing its financial resources. This is a matter of vital importance to all medical colleges, especially those that have to depend almost exclusively for their support upon the income derived from student patronage.

Although I have suggested the financial advantages which are to be gained by a well arranged museum in connection with a medical college, I would not be understood as recommending that a medical museum should in any way partake of the nature of an "advertising bazaar." This would be a very poor means of attempting to make a favorable impression upon the public mind, because it is not so much the objects themselves which interest, as it is the arrangement of them and the manifest extent of scientific knowledge which they display.

2. Data, consisting of normal and pathological specimens, are here preserved for future reference.

Thus far, for the most part, scientific men of all classes and generations have shown too great a willingness to make generalizations upon insufficient data. Especially has this been and now is the case with medical men. This is a gross error and one which is materially retarding the growth of our profession. Experience has taught that all advancement in knowledge depends primarily upon our having *facts* from which to reason. If we have the evidence before us, the probabilities of arriving at accurate conclusions are materially enhanced.

This was insisted upon two thousand years ago by Aristotle, the representative of the learning of antiquity in natural science. He says:

"The procedure of philosophy, is that of all other sciences; we must first collect facts and get a knowledge of the things which are the subject of them; not the mass of facts at once, but each fact for itself is to be first examined and the conclusion thence drawn. Having the facts, it is our subsequent business to establish their connections." (3.)

Prof. W. H. Flower, F.R.S.,* writes in a letter to *Nature*, (2, 11, 61): "We are only beginning to form an idea of the enormous number of specimens actually required to enable us to rest our generalizations relating to most zoological problems upon a firm basis, and of the importance of keeping these specimens in such a condition, and so placed, that they can be examined with the greatest facility."

Although the above is intended to emphasize the importance of realizing that the progress of science is dependent upon the accumulation of facts, I would not be understood as conveying the idea that science is advanced much, if any, by the mere accumulation of them. The point I wish to enforce here, is the necessity of amassing a sufficient amount of accessible material to rest our conclusions upon a firm basis.

3. Museum specimens can be used advantageously to illustrate didactic and clinical lectures.

* Conservator of the Museum of the Royal College of Surgeons of England.

With reference to the utility of museum specimens for lecture purposes, Mr. Watts, F.G.S., has remarked as follows :

“In addition to a museum, I think such a building should contain lecture rooms, especially fitted for scientific lectures, as the value of able discourses is frequently lost for want of clearness of illustration.” (8, 161.)

The desirability of illustrating lectures by the actual specimens, whenever it is possible to do so, is so generally accepted by all teachers, that it needs only to be mentioned here as one of the advantages of having always at hand well selected and typical sets of specimens for class instruction.

4. Museum specimens may be profitably used for the advancement of medical science and for instruction in a *museum laboratory course*, * the aim of which is to diffuse biological knowledge among medical students and enhance their power of discrimination.

A writer in the *Tribune* has said : “We think the day is coming when it will be generally recognized that careful scientific observation is the most important labor performed in the world.” (5, 11, 371).

Prof. Huxley, in a lecture delivered before the science classes at the South Kensington Museum, on the method of studying zoology, made the following pertinent remarks :

“However good the lectures may be, and however extensive the course of reading by which they are followed up, they are but accessories to the great instrument of scientific teaching—demonstration.” (6, 137.)

Having the accumulated evidence before us in the shape of facts, normal and pathological specimens, they will still remain almost wholly useless unless these “facts are transformed into scientific truths.” This is well put by Agassiz :

“I should be glad to contribute my share towards removing the idea that science is the mere amassing of facts. It is true that scientific results grow out of facts, but not until they have been fertilized by thought. The facts must be collected, but their mere accumulation will never advance the sum of human knowledge by one step ; it is the comparison of facts and their transformation into ideas that lead to a deeper insight into the significance of nature. Stringing words together in incoherent succession does not make an intelligible sentence. Facts are the words of God, and we may heap them together endlessly, but they will teach us little or nothing till we place them in their true relations, and recognize the thought that binds them together as a consistent whole.” (4, 202.)

II.—*What is the most desirable form of a museum building, or of rooms devoted to museum purposes, and of the cases in which objects are to be displayed?*

I would state at the outset that the great *desideratum* in a building or rooms devoted to museum purposes, is to *have plenty of light*, so that the details of the objects can be seen without difficulty in the remotest corner.

The only effort at presenting this part of the subject in detail, giving plans, estimates, etc., that has come under my notice, is in the form of a little book written and illustrated by two architects, published in London in 1853. (10.) But our ideas in reference to these matters have changed so materially since that time, that the book in question would be referred to more out of

* This proposed museum laboratory course, as a part of a scheme for educating medical men, will be referred to again.

curiosity than for practical information. However, in recent years the subject has received considerable attention in the way of occasional suggestions and remarks from those whose occupation has brought them directly in contact with museums, either as curators or teachers.

Prof. Ward has paid considerable attention to the arrangement of the interior of museums, and it is to be regretted that his views upon the subject have not been given to the public.*

Dr. Sclater, whose experience with museums has been such as to render his opinion valuable, has given his views upon this question in a paper read before the British Association (15,455).

He states that the building should be constructed in accordance with the needs of the classes of people which the museum is intended to accommodate, namely; the public at large who go there to get more or less general notion of the structure of natural objects, and their general arrangement in a *systemata naturæ*, the students who use the museum for scientific purposes, and the officers of the institution whose business it is to amass and arrange the collections. He recommends wall-cases hermetically sealed on the side towards the public and opening behind into work-rooms where specimens can be taken out and examined, and in which unexposed portions of the same series are arranged in drawers and cabinets.†

Mr. Wallace, (15), objects to the system of wall-cases proposed by Dr. Sclater, upon the ground that they are not adapted to fulfil the purpose for which they were designed. His objections to such cases are:

First.—They admit of any object being seen by the smallest number of persons at once, so that any person studying an object almost necessarily monopolizes it and prevents others from approaching it, an inconvenience that reaches its maximum in the cases exhibited in Dr. Sclater's plan.

Second.—Objects in wall-cases can be seen only on *one* side, while *all* sides of natural history objects require to be seen. Wall-cases would necessitate many specimens to do the work of one.

Third.—The observer on the one side from which alone he can see an object, will usually stand in his own light, and will even have distinct vision further impaired by reflection from the glass.

Fourth.—When small objects occur alternately with large ones, a great waste of space occurs, and the attention is distracted from the less conspicuous object.

Fifth.—It is an expensive and wasteful mode of arrangement. The system advocated by Mr. Wallace is that of detached cases on tables or on the floor, of various sizes and each exhibiting one typical object or group of objects, capable of being seen on *all sides*, and admitting of convenient examination in the best light by the *greatest number* of persons at once.

*Prof. Henry A. Ward, of Rochester, N. Y., is the most extensive dealer in natural history specimens of all kinds in this country, and it is my impression that his business is the largest of its kind in the world, now that Edouard Vessaux, of Paris, is dead. Prof. Ward devised the plans for the cases at Cornell University, that now contain Prof. Newcomb's extensive conchological collection, the third in size in the world; he has also done a great deal of similar work for other universities and colleges in this country. *Vide* short account of his establishment by Prof. Wilder (13,460) and by Prof. Morse (14).

†This plan for museum cases was first suggested by Dr. Hooker, in an article entitled "A Metropolitan Naturalist," in the *Gardener's Chronicle* for 1858, p. 749, (18).

Prof. Archer, of Edinburgh, agrees with Mr. Wallace in regard to the arrangement of specimens. He states that, "at South Kensington, where the question of constructing cases best adapted for the display of objects in a museum, has received a greater amount of intelligent attention than at any other museum, they have shown that you can make cases which will admit of perfect symmetrical arrangement, and yet be of various sizes, so that small objects as well as large ones may be so exhibited as to permit of their being examined from all sides, instead of from one point of view only, as in wall-cases." (15.)*

Thus it will be seen that though wall-cases have been almost if not quite universally used in museums, there is considerable argument in favor of abandoning them or of using them in a limited way, and only for certain classes of objects; the reason being that they fail to perform the function for which they were designed, namely, of displaying to the best advantage the objects they contain.

The time has now come when intelligent managers of museums will cease in their efforts to display the greatest possible number of objects, without regard as to *how* they are displayed.

The thing to be desired in museum specimens that are displayed for public instruction, is that each and every specimen or series of specimens so displayed, should be the representative of some intelligible idea that it is desirable to convey by the exhibition of such objects. If only objects of this nature are to be exposed, and I think this will be conceded by all who have given the subject any thought, then the question which we have now under consideration becomes all the more important.

If wall-cases are to be used, I would recommend the plan which was carried out at my suggestion in the building of those which now contain "The Green Smith Collection of Birds," and that of my own zoological collection at Cornell University; namely, that the *ends* of all wall-cases should be of glass instead of wood, and that the sashing for the front of the cases should be made as light as it is practicable to make it, thus permitting the greatest possible amount of light to fall upon the objects. All cases of whatever kind should be made as nearly air-tight as possible, to prevent the ingress of dust and museum pests. Each case should be provided with a suitable lock and key.

The most convenient and room-saving shelving for wall-cases, that has come under my notice, consists of short shelves supported by movable iron brackets, admitting of their being placed near together or far apart according to the height of the specimen to be accommodated.

At first one might think that unless the short shelves in a large case were arranged upon the same level, the effect would be anything but pleasing to the eye, but from personal experience with such shelving, I can assert with great positiveness that the opposite of this is true.

(*To be continued.*)

NEWS AND SUNDRIES.

TRICHINOSIS.—Cases of trichinosis have lately been discovered in Brooklyn, and in Hoboken, N. J.

A PROLIFIC EWE.—The London *Live-Stock Journal* tells of a Shropshire ewe which dropped thirteen lambs in four seasons—three threes and a four.

LIVE-STOCK RESTAURANTS.—Live-stock restaurants ought to be established along the routes of shipment of our Western cattle, and all animals should be fed every twelve hours.

ACADEMIC HONOR.—M. Pasteur has been inaugurated a member of the French Academy. He was received on April 27th as a successor of the late M. Littré, on whom M. Pasteur, in his reception speech, made a fierce attack. M. Ernest Renan replied to the speech.

HYDROPHOBIA.—This disease is on the increase in Paris. From the report of the official veterinary surgeon, there were last year 615 cases, and 153 persons were bitten, of whom 23 died. In 1881 there were but 297 cases, of which but 5 terminated fatally.

TERRITORIAL VETERINARIAN.—The appointment of Territorial Veterinarian, tendered to Professor A. Liautard by the Governor and Council of Wyoming Territory, and declined by that gentleman, has been conferred on Dr. J. D. Hopkins, to date from the 1st of May.

PROLIFIC STOCK.—The London *Agricultural Gazette* is authority for the following item concerning a prolific flock of sheep: In a well-known flock in the eastern counties, forty ewes have this season brought the extraordinary number of 130 lambs, thirty of the sheep having three lambs each and the others four each. The youngsters are all nice, strong lambs. The flock is of the pure-breed, black-faced kind.

NEW DISINFECTANT.—Professor Carlo Pavesi, of Italy, proposes, as an improved disinfectant, a solution composed of chloride of lime, camphor, and glycerine. This mixture is capable of being used in all cases in which phenic acid is now employed, and its odor is less disagreeable, less irritating, and less toxic than that of the latter. It is said to arrest the putrefaction of animal bodies at once. It is highly commended by the London *Medical Record*.

REPORTED RINDERPEST.—Maine papers reported last week that John F. Rutter, of Ripley, lost five cattle by a disease which a veterinary surgeon declared was rinderpest. The animals were killed and buried by order of the municipal authorities. Fortunately the opinion of the veterinarian is not conclusive proof; not so very long ago a veterinarian declared that a case of contagious pleuro-pneumonia had been found in the Chicago Union Stock Yards, and later that calves were dying by dozens in Iowa of that disease, but it is now known that no pleuro-pneumonia has existed in the West.—*Breeders' Gazette*.

TRICHINOSIS IN AMERICAN SWINE.—A discussion was recently held in the Paris Académie des Sciences, regarding trichinosis in American pigs, and the prohibition of the importation of pork from this country (*Le Courrier Medical*, March 4, 1882). The majority report of the committee charged with the investigation of the subject embodied the resolutions here briefly subjoined: *Resolved*, That it is unnecessary to subject pork imported from America to a microscopical examination, with a view to preventing the development of trichinosis in the consumers of this meat, because the culinary processes adopted by the consumers are found to completely guard them from infection. *Resolved*, That special circulars be distributed by the Government among the rural population, for the purpose of warning against the danger accruing from the use of raw or uncooked pork. These resolutions were adopted by an immense majority, and forwarded to the Minister of Commerce.

TUBERCULOSIS IN THE CENTRAL NERVOUS SYSTEM OF COWS.—Some interesting cases in which the above disease occurs are related by a German veterinarian. The symptoms are characteristic: "In all cases the head is held high up (corresponding to the boring movement of the head in children), and in some cases twisted to one side. The eyes have a changed appearance. They are either staring, or else are directed forward, or there is some form of strabismus. Often the pupils are unequal. The limbs become stiff. The hind legs may be paralyzed, or the animal falls down, and remains on its side, with stiffened extremities.

Generally the lungs are affected at the same time, and this fact will greatly help the diagnosis.

There may, perhaps, be a few tubercles in the meninges of the brain or cord for months; but the disease is essentially an acute one, just as it is in human beings.

That the tubercles are the true tubercles of bovine tuberculosis is shown by their developing, in some cases, directly on the *dura mater* of the brain in the form of little pedunculated tumors; so that the German name of "pearl disease" applies to it still when situated in this region. They also show a tendency to calcify, peculiar to the pearl disease.—*Medical Record*.

DIPHTHERIA IN CALVES COMMUNICATED TO PIGS.—Mr. Cole, a veterinary surgeon, of Hineckley, in Australia, has published the following illustration of the way in which diphtheria may be communicated from one of the domestic animals to another of a different species, thus indicating special sources from which the human disease may at times be contracted.

A calf, about five months old was found to be dying with some symptoms of a throat disorder, and instructions were given to have the body buried, which, through some neglect, was not done immediately, so that a sow which managed to get access to the enclosure attacked the diseased meat and ate some of it. This circumstance came to be known when, a few days later, some of the pigs were taken down with throat disease. Eventually the sow and her young pigs were also victims. These latter died within twenty-four hours, while the others, including a boar, recovered entirely. Apropos of this outbreak among domestic animals, an account is given of an epidemic that occurred in the Oakleigh police station, traced to a diseased cow, whose milk had been used by the inmates of the station.—*Australian Veterinary Journal*.

RESUSCITATION OF ANIMALS AFTER EXPOSURE TO EXTREME COLD.—F. F. Loptschinski says, (*Vratsch*, No. 5-7) there is a remarkable disagreement between experiments and clinical observers as to the manner of treating individuals that have been exposed to extreme cold. While nearly all of the latter hold that

the application of heat should be gradual, the former (Beck, Horwat, Jacoby) advise that it should be rapid. The author has experimented with dogs in order to solve this question. Some of the animals were exposed to cold air (-17° C., two above zero F.), others were packed in freezing mixtures ($13-15^{\circ}$ C., $5-8^{\circ}$ F.). After freezing, one of the animals (twenty experiments were made, each with three dogs) was immediately placed in a warm bath of 37° R. (115° F.); the second was placed in a room the temperature of which was $22-24^{\circ}$ R. ($81-86^{\circ}$ F.); the third was first placed in a temperature of 0° (32° F.), and then, as the temperature of the rectum rose and manifestations of life were shown, the bodily temperature increased. Friction with brushes and dry cloths was used in all three cases.

The experiments, which were made with great care, throw light on various conditions which will not be referred to here (blood examinations, microscopic examinations of the muscular tissue, conditions of temperature, etc.). But there were other results which have a practical significance for physicians. Of 20 animals that were exposed to a low temperature which was gradually elevated, 14 died; of 20 animals that were immediately brought into a warm apartment, 8 died; of 50 animals that were immediately placed in a warm bath, *none* died.—*Medical Record*.

EXCHANGES, ETC., RECEIVED.

FOREIGN.—Archives Veterinaires, Recueil de Medecine Veterinaire, Journal de Zootechnie, Revue de Hygiene, Gazette Medicale, Annales de Belgique, Clinica Veterinaria, Veterinary Journal, Veterinarian, Revue fur Thierheilkunde und Thierzucht.

HOME.—American Agriculturist, Medical Record, Ohio Farmer, Practical Farmer, Country Gentleman, National Live Stock Journal, Breeders' Gazette, Turf, Field and Farm, American Cultivator, American Farmer.

COMMUNICATIONS.—H. F. Foote, J. B. Garrison, J. P. Klench, G. S. Agersborg, M. J. Treacy, C. L. Hingston, A. A. Holcombe, C. B. Michener, E. Mink.

AMERICAN VETERINARY REVIEW,

JULY, 1882.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

BY A. ZUNDEL.

(Continued from page 100.)

CONTRACTED HEELS—HOOF-BOUND.—*Continued.*

Attempts have been made to dilate the contracted foot and to cause its return to its normal dimensions by mechanical means. The *shoe with ears* (fig. 13) has been devised for this purpose.

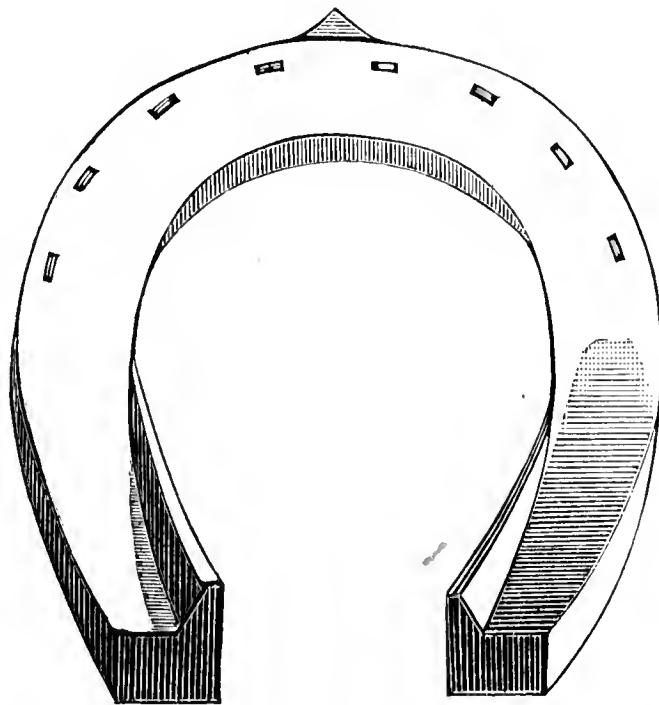


Fig. 13.

This is a shoe provided on the inner border of each heel with an oblique, blunt, sometimes perpendicular *clip*, resting upon the bars, which have been previously hollowed out for its reception,

the design of which is to resist the return of the hoof which has been dilated, to its former contracted condition. Ruinien had spoken of this shoe as early as 1618. It was put on, after the dilatation of the hoof with the farrier's nippers, applied on each side of the quarter, the sole being entirely removed. In our days this operation of removing the sole is considered useless, and instead of the nippers of the farrier, dilators are used, under the name of *spreaders* (Desencasteleur). The oldest known form is that of Jarrier (fig. 14). This is composed of two curved

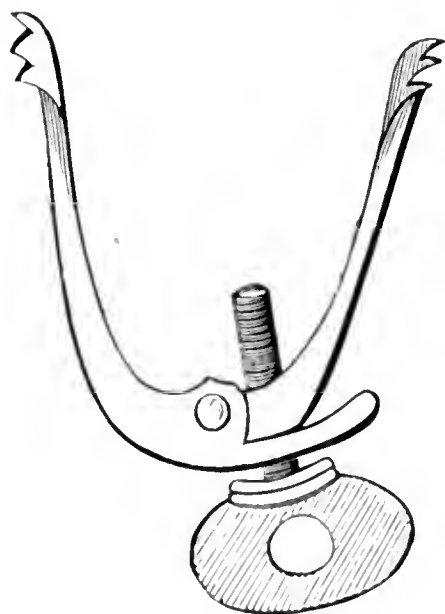


Fig. 14.

branches, 11 centimetres in length, articulated at one of their extremities like the ordinary compass, at which point there is a screw of peculiar form by which the branches are closed or opened at will, the other extremity having a strong claw projecting outwards. These claws are applied inside of the bars, towards the heels, which are previously thinned out, and by manipulating the screw the hoof is dilated to the extent desired. The shoe is then used like an ordinary one, both heels being armed with a clip on the internal border, the clips resting on the heels of the foot, which have been first opened with the drawing knife. This mode of treatment proved successful with Lafosse and others who experimented with it at the Saumur school. Under various experiments, the *Desencasteleur* has changed its form. Thus, Lafosse has arranged the two branches to run separately upon a transversal rod like an ordinary vice, in which form the branches are shorter, and more power is obtained (fig. 15). There are

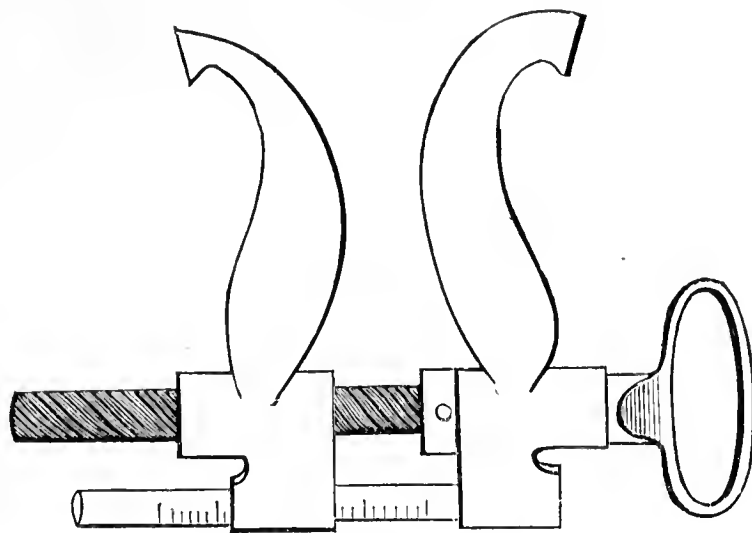


Fig. 15.

many other improvements which we cannot mention for lack of space.

Instead of applying the dilatation upon the hoof, and afterwards using a shoe which is closely adapted to the dilatation thus obtained, spreading shoes have been used. In the method of Jarrier, the shoe has to maintain the hoof in the condition of dilatation which has been accomplished by the instruments of expansion. It is a very delicate and difficult operation, so far as the proper dilatation of the foot is concerned, requiring the closest adaptation between the clips of the shoe and the parts of the wall upon which they rest. An error of a few millimetres only is sufficient to defeat the desired result; and the shoe, moreover, must be taken off at each operation. To avoid this, special shoes, which would act also as dilators, were invented. It was not, however, a new idea; Lagueriniere had as early as 1733 prepared a shoe composed of three pieces—one median, corresponding to the toe, and two laterals, in connection with the quarters; these latter are respectively articulated with the first, and have each three nail-holes. When this shoe was fixed upon a foot, whether unsoled or not, its branches were spread apart by a plate left in place, and by increasing by degrees the length of the plate, a gradual and increasing dilatation of the hoof was obtained. Gaspard Saunier improved upon this shoe by placing on the internal border of the branches, cranks, with a plate placed crosswise and resting upon them (fig. 16). The objection to this shoe is that it cannot remain on the foot except when the animal

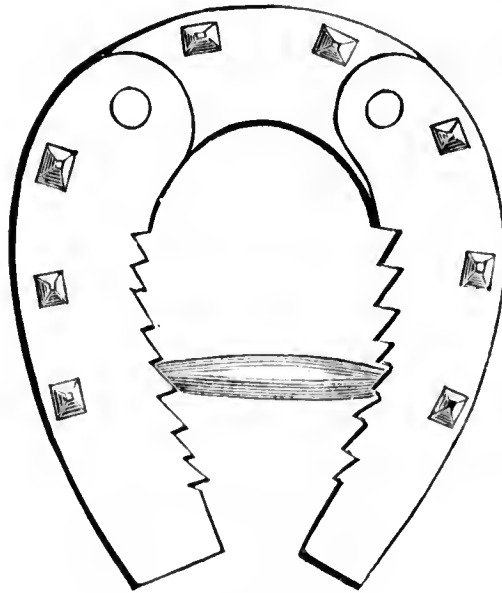


Fig. 16.

is at rest, as when he is at work it soon becomes loosened; besides which it is difficult to make properly.

Rolland has contrived an articulated shoe, in three pieces, the two lateral pieces being kept apart by double steel springs, which press upon them from the toe on their internal border, and thus effect the desired dilatation. Hatin has a simpler shoe (fig. 17).

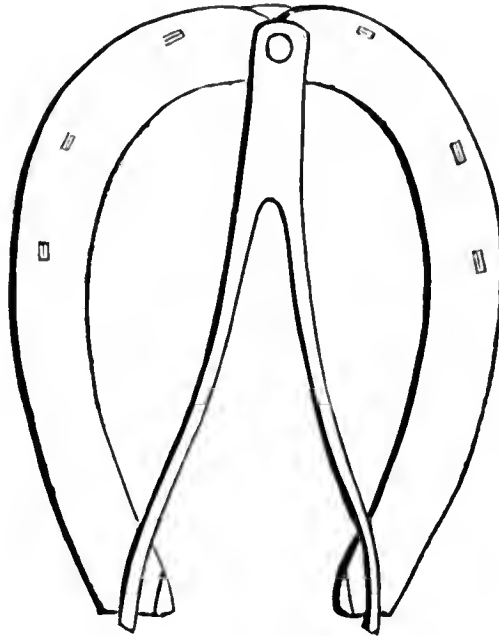


Fig. 17.

It is a light shoe, with nail-holes distant from the heels, and provided on the internal border with a small clip upon which rests a V spring, fixed by its point upon the toe of the shoe. The branches of the spring lodge in the hollows of the sole and of the frog, and press upon the shoe, and thus produce a slow dilatation. Steinhoff has also invented a shoe with springs. It has recently

been proposed to obtain the dilatation by means of a strong sole of cautchouc, placed between the shoe and the foot, leaving the frog full ; very thin where it rests upon the shoe and the foot, and becoming thicker towards the inner border of the shoe, which it overlaps. First it rests in the groove of the bars, and then protrudes upon the flat of the shoe, and bears on the ground at the time of rest. This elastic mass, compressed at the moment of contact, slightly dilates the shoe, which is articulated, or, what is better, very narrow at the toe, and square ; the heels also are thus slowly and gradually dilated.

Goodwin also has invented a very ingenious, but too complicated shoe, composed of three articulated pieces. From the centre of the median piece a prolongation of iron extends to the back of the frog, and is of sufficient thickness to be perforated, the hole having a thread through which a screw is introduced, running on each side. The branches of the shoe have three nail-holes, and from the inner border of the heel rises a clip so turned as to rest on the origin of the bar. The mechanism of the shoe is easy to understand, each branch being opened by the play of the screw which passes through the prolongation of the median piece, one extremity of which rests upon this prolongation, while the other presses upon the inner border of the movable branch.

The Goodwin shoe has been essentially improved by Fouris (fig. 18). It is a bar shoe, the bar being thicker than the rest of

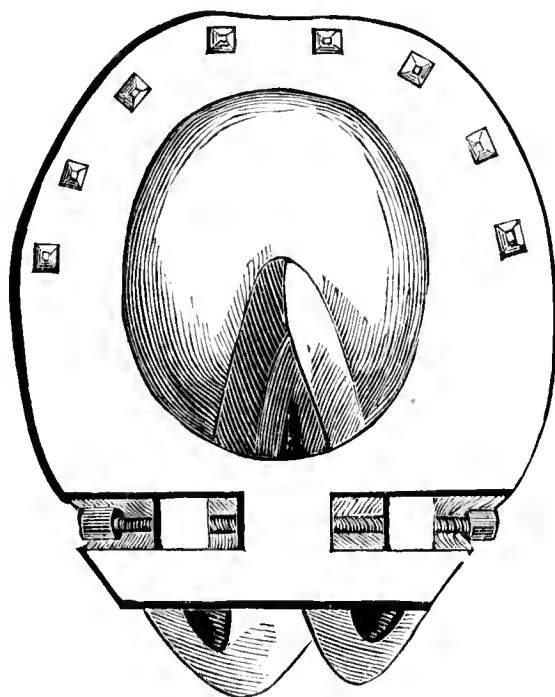


Fig. 18.

the shoe, and wider than the ordinary bar shoe. The bar is notched on each side, and through each notch runs a thread or vice which holds a movable clip, which is made to rest on the inside of the bars, which are first properly thinned out. By a motion of the clip through the thread, the heels are dilated slowly and by degrees. This shoe, however, is very expensive, difficult to make, and easily put out of order.

In all these methods of dilatation the shoe has to be made of several pieces, and in this condition is found a constant cause of weakness and of rapid deterioration, for which reason they are not very practicable. It is not so with the system used by Defays, Sr., by which the shoe, besides containing the essential elements of the desired mechanical dilatation, is left entire to fulfil the functions of the ordinary shoe, as well. That which characterizes Defays' method, who had used it in 1829, but which was made known only in later years, is that the shoe itself, which, by its ductility in action, becomes the agent of the dilatation of the hoof, becomes also, by its natural tenacity, the obstacle to the return of the foot to its former contracted condition, when once it has yielded to the outward motion which it has acquired. Defays uses an ordinary shoe, thick and narrow, and then further narrowed at the toe, if it is to be used on a foot regularly contracted. When it is thus affected, at five or six centimetres of the heels; if the contraction exists at the quarters, at the end of each branch. This shoe carries on the inside border a strong, resisting clip, made at right angles, to rest on the internal border of the wall of the heels. The shoe is flat, grooved like an English shoe, with nail holes slightly turned inwards; the last nail hole made as far as possible from the heels. It is made of the best quality of iron, in order to resist, when cold, the greatest amount of forced spreading by the dilator: it is the *expansive slipper* of Defays (*pantoufle expansive*).

The foot upon which this slipper is to be fixed must have both heels pared evenly, the sole and the bars pared down to a spring, and the hoof round the frog, on each side, thinned down as much as can be borne. Then, the shoe, flattened and without curvature on its faces—resting, therefore, on a strictly horizontal plane—is

put on the foot in such a manner that the clip of the heels rests against the internal face of the quarters. This done, the space between the two heels is measured with a compass, and then the dilator is applied (fig. 19). This instrument represents a true

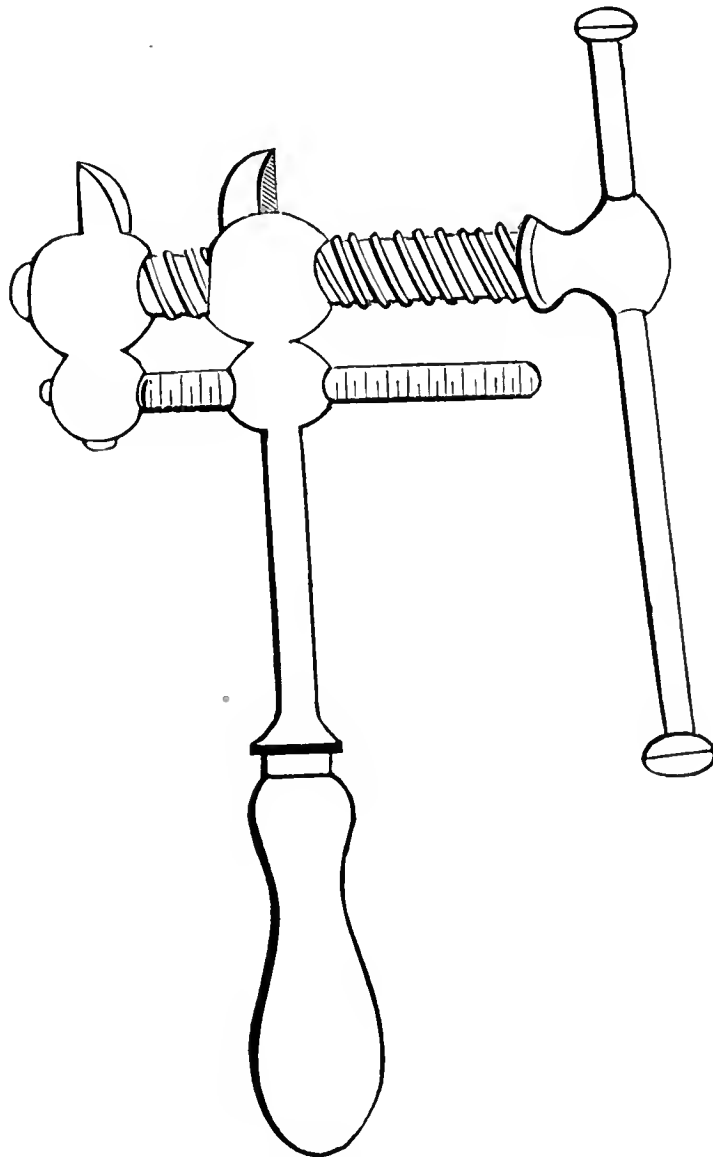


Fig. 19.

vice, with jaws reversed, moving from, instead of approaching each other. It is formed of two jaws which can be made to approach or separate by a transverse screw put in motion by a movable lever. The degree of separation is regulated by a graduated rule placed horizontally, which serves also to maintain the jaws at the same point when separated. The two jaws being introduced between the heels of the shoe, the vice being held perpendicularly to the plantar face, the screw is slowly turned until the branches are opened, say, eight or nine millimetres; then at the point or points of the shoe which have yielded to the pressure of the instrument, one or more blows are struck with a hammer on the outside of the branch of the shoe, to loosen the instrument, until

it drops down, without disturbing the screw, a record being made of the degree of dilatation secured, upon the graduated register. After three or four days the same operation is repeated, the spreading being then not more than four or five millimetres. It must be less than at the first, because at the beginning the less perfect contact between the projection of the heels of the shoe and the wall has allowed a considerable amount of dilatation without producing much result. These repeated dilatations once in four days for a month, are assisted by the application of soft poultices in horses which, on account of the pain and consequent lameness, are kept in the stable. Others may be put to work, and receive poultices only when at rest, or may be turned into damp fields. The shoe rarely needs changing during the treatment, which lasts about a month. This mode of opening the heels is especially practicable and of easy application, and has the advantage of allowing the use of the horse, whose foot is as well protected as with the ordinary shoe. It becomes indispensable when the disease has been of long continuance and is accompanied with much lameness. It is liable to but one contra-indication, and that is when the foot is not sufficiently strong to hold it, by reason of the heels having been pared down excessively. It has been tested for a long time, not only by the Defays, Senior and Junior, but by many others. H. Bouley, in France, with Hartmann and Mayer in Germany, recommend it as an excellent curative treatment.

We must again mention the simple and light desencasteleur of Jovard, (fig. 20) which is as powerful as that of Defays. It is

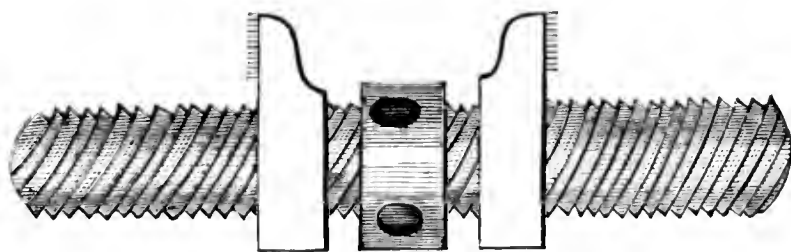


Fig. 20.

composed exclusively of a double vice, with opposite threads, opening or closing two strong claws, which are applied upon the internal borders of the branches of the shoe; a rod of iron is introduced in the holes at the head of the vice and puts the instrument in motion.

It may be said, that on general principles, it is preferable to treat hoof-bound by the use of dilating shoes than to resort to the bloody operations recommended in earlier times. It is these that Brognicy recommended highly for the removal of one or two quarters of the wall, with an appropriate dressing. H. Bouley, however, believes that it would be wrong to discard these operations entirely; he believes that there are conditions where they become necessary, and where they furnish better and quicker results than the others referred to.

We cannot overlook the treatment recommended by Barthelemy, which consists in the thinning first with the rasp, then with the drawing knife, of the bars, in their whole length, depth and thickness; thinning them down to a spring under the pressure of the finger. This done, a layer of blister is applied on the skin of the cuti dura and upon it, in the parts corresponding where the hoof has been thinned down; the application to be renewed several times, until the lameness has subsided. This operation is followed by an excess of the horny secretion and a marked enlargement of the hoof, and gives good but slow results. Gross has often operated in the same manner, alternating the blister with poultices.

A *modus operandi* which has also been very satisfactory, is the one that was recently made known by Weber, and which consists in the division of the wall at several points, by grooves extending down to the keraphyllous horn, in the direction of the fibres of the hoof. Two or three are made, on each side, between the quarters and the heels, the heels at the same time being pared down, when a bar shoe is put on, which rests on the frog, or if that organ is atrophied, pressure upon it is simulated by the addition of pieces of leather. Frequently, instead of paring the heels down excessively, and when the frog is atrophied, we prefer a slipper after having pared the sole and bars to a spring. The method of Weber is not new. It was previously known by Lagueriniere, and is mentioned by Buginet and Herbert d'Arboval. With it we may slowly but surely achieve success, and there are but few feet which are not relieved or cured; but the grooves must be renewed from above at each shoeing.

Solleysel made lines of cauterization on each side of the heels, extending from the hair to the shoe, which, running through the hoof, softens it and renders it more tractable.

We cannot at present consider the complications likely to be encountered, but must satisfy ourselves by remarking that in case of false quarters, to avoid the painful pinching of the soft parts between the two walls, there is nothing better than to clean the place of separation thoroughly with the drawing knife, and to fill the space with a putty of gutta percha.

(To be continued.)

AN INQUIRY

INTO THE ETIOLOGY AND PATHOLOGY OF THE VENEREAL DISEASES OF MAN AND OF THE LOWER ANIMALS.

BY CHARLES F. RING, M.D.

(Continued from page 110.)

“In a thesis by Prieur, Paris, 1851, even in his letters *sur la syphilis*, 1850, Ricord put out the first ideas of dualism in the syphilitic doctrine, intimating in the latter treatise, in regard to syphilization, that perhaps the induration in some chancres and its absence in others was due to a difference in cause, and, in the thesis, stating that in his experience the transmission of non-indurated chancre to healthy subjects always produced its like, while indurated chancre always recognized a similar lesion as its point of origin.

“In 1852, Leon Bassereau, by a review of laborious confrontations, established the individuality of chancroid, and made it evident to the world that venereal ulcers belonged to two distinct families, the non-indurated and local, the other indurated and followed by syphilis. This is the doctrine of dualism. Clere, following Bassereau, strengthened it. Ricord approved it formally in 1858, and gave it wide-spread circulation by the weight of the influence his high authority in venereal disease allowed him to exercise. Ricord had dissented from this view at first, but upon his adoption of it the adherents of the doctrine of unity of the

syphilitic poison, *i. e.*, similarity of cause in the production both of the indurated and the non-indurated sore, received a blow from which they have never recovered.”—[Keys: Venereal Diseases, p. 8.]

Perhaps we can make this point—the distinction between the chancroid and the chancre—or between the local and the constitutional disease—somewhat clearer by referring to analagous diseases in the lower animals. It is well known to veterinary writers that the brute creation suffers from venereal diseases—not unlike those affecting the human family, and that these are both local and constitutional.

Professor Fleming writes: “It is very probable that contagious diseases of the genital organs are observed in the domesticated animal in every part of the globe.” Of an affection termed “*pseudo syphilis*,” he says: “This is a contagious disease of the genital organs, in which the lesions are almost exclusively localized; it is common to the male and female, affecting both solipeds and bovines, and assumes three or four distinct forms, but most frequently the pustular. * * * It is essentially benignant; is in the majority of instances transmitted in the act of copulation, but can also be artificially induced by inoculation. It appears to be due to a morbid change affected in the secretions of the genital mucous membrane by too frequent coition, or constitutional derangement. The disease appears in the spring time, during the coupling season; but it is difficult to explain its origin. Some authorities attribute it to too frequent copulation; while Sajowe, who described it many years ago, thought it was due to the use of stallions heated by excessive use, and whose ardor was maintained by stimulating food and drugs. But these causes do not explain why the disease should assume a contagious character; we can understand their predisposing to such a malady, but beyond its resulting from copulation, we are unable to account for its transmissibility. Lafosse has remarked it to be most frequent with over-exerted stallions, which are put to many mares in a brief space, particularly in those instances in which the horse and ass are used for the same mares about the same time. The contagium finds access by the genital mucous membrane. It is readily in-

oculable, for Lafosse has repeatedly succeeded in inducing it in this way. By scraping the surface of the ulcers on the penis with a lancet, and depositing the matter so obtained beneath the epidermis of the labia of the vulva, or that of the vaginal mucous membrane, the symptoms have been developed in due course. In the first-named situation, there appeared on the skin, between the sixth and tenth day, pustules resembling those just described; in the second, the membrane became inflamed and thickened around the punctures, the epithelium was raised by a viscid transparent matter in the form of a small vesicle, which burst; the epithelium becoming detached, leaving a superficial ulcer, gray in the centre and red at the edges, this ulcer increasing in size until it is met by those nearest to it. A yellow sticky mucous then flowed from the vulva, soiling the quarters, thighs, hocks and tail; gradually the inflammation subsided, the ulcers healed, then the discharge ceased, and all the symptoms vanished. Analagous phenomena were witnessed when the matter from a diseased mare was inoculated on the penis or the urethral mucous membrane; the inflammatory process, ulceration and morbid secretion were all noted, though the different phases were not followed so regularly as with the mares, so that it could not be affirmed that the eruption on the penis was quite identical with that on the female genital organs.

“There is no difficulty whatever in curing this disease in its simpler forms, nature generally intervening to restore the patient to a state of health, and art only expediting recovery by perhaps a few days. Cleanliness and cessation of copulation, emollient and astringent applications in the form of lotion or injection, are nearly always sufficient to bring every case to a favorable termination. If the inflammation runs high, gangrene and the formation of abscesses must be guarded against by the administration of febrifuge and purgative medicines, with topical astringents largely diluted. Abscesses must be opened, or hastened in their development; and should paraphymosis occur, local bleeding in the form of scarifications, suspending the penis by a wide bandage around the loins, and the application of astringents and cold water, will be most beneficial. The ulcers, if deep and callous,

should be dressed with caustics or the actual cautery.”—[Veterinary Sanitary Science and Police, vol. 2, pp. 337, 346.]

This disease of the horse and the ox would correspond to chancre in the human family, only as so much greater mucous surface is exposed in the former case, it is more pustular than in the latter, where the mucous surface is much smaller, although there the sore is generally multiple. Essentially the two diseases are of the same nature—as any one can see from reading the above, and we need not endeavor further to enforce this point. This “local affection” is not confounded with the *constitutional venereal malady* in the horse, which we shall speak of farther on, and which is of comparatively recent origin. We should here accept a lesson from the veterinary surgeon, and all those who believe that the chancre is identical in effect with the chancre should pause and *think*, and after we have detailed to them the syphilitic disease in the horse, they should *think again*, and perhaps by the time we shall have finished this study they may be disposed to be less positive in the expression of their views.

But to another disease—“bovine gonorrhœa.” This malady, in its general characters, is allied to the preceding forms, and is commonly known in this country, by the farmers and others, as “bull burnt.” It is a local disease, chiefly affecting the prepuce of the bull, and the vagina and uterus (in severe cases) of the cow. Its causes are generally obscure, and may depend upon constitutional tendencies, though there can be no doubt that undue copulation, inattention to cleanliness, and general neglect, will generally increase, if they do not immediately excite the malady. The symptoms are very marked and distinctive. There is considerable pain manifested during the act of micturation, which is often attempted and imperfectly accomplished; the animal is restless, stamps, jerks up the hind legs, lashes the tail and moves from side to side, at times groaning and grinding the teeth. The pulse is accelerated and full, and constipation of the bowels is sometimes present. At first the discharge is slight, though it is soon increased, and thick, white and corrosive; there is also much tumefaction, the parts becoming of a deep red color. In neglected cases the mucous membrane is divested of its epithelium,

ulcers appear, and a bull may become totally useless from the formation of sinuses in the penis, and also from excrescences on it. There can be no doubt as to the contagiousness of this affection, the discharge being the contaminating agent. Copulation alone disseminates the disease.”—[Fleming, *Ibid*, p. 349.]

With this disease we complete the analogy with similar affections in the human family. “The term ‘duality of syphilis,’ therefore, really signifies a duality, not in syphilis, but in what had been known as syphilis and called by that name.”

Let us now briefly recapitulate, before proceeding further, the principal points we have already considered :

I.—It has been shown by a preponderance of evidence that the fact of the antiquity of syphilis has not been satisfactorily ascertained; that no substantial argument whatsoever has been adduced in its support, and that the so-called Biblical knowledge of syphilis is to all intents and purposes a myth.

II.—That the supposed metamorphosis of lepra into syphilis is not only highly improbable, and can in no way be substantiated, but the weight of evidence and experiment, as well as all analogy, is entirely opposed to such a view.

III.—That syphilis originated in Europe near the close of the fifteenth century, at or about the time of the siege of Naples by Charles VIII., and came not from America, as was for a time supposed.

IV.—That there are at least two entirely distinct and separate kinds of venereal products—the one inducing syphilis and constitutional disease; the other local mischief only, which is comparatively harmless and capable of originating *de novo*.

V.—That venereal diseases in a *local form* have undoubtedly existed from the earliest antiquity, being due, principally, to a want of cleanliness, ill health, and various exciting causes, and have their perfect analogues in the gonorrhœa and chancroid of the lower animals, especially bovines and solipeds.

GENESIS.—We are now prepared to study profitably the evolution of that singular and mysterious epidemic of the close of the fifteenth century; to trace it, if it be possible, to its source, and to show how and in what manner it ultimately became a venereal disease, which it certainly was not at first.

Jahr writes that "although we cannot consider the so-called epidemic syphilis of the last years of the fifteenth century as a venereal disease *in itself*, nevertheless we have to view it as the fountain head of our modern syphilis. In this respect, whatever has reference to the originating causes and the phenomenal forms of that epidemic must be as valuable to us as the ulterior history of syphilis itself."

Of the epidemic itself, Petrus Pintar reports to Pope Alexander VI.: "The prevailing epidemic is characterized by a variety of symptoms, more particularly by keen and excessively violent pains. Some do not have any pains, in the place of which they are attacked by *pustules* of various shapes and sizes, being very numerous on some individuals, and on others more scanty. Sometimes the pustules break out only in the face, or on the head, while the other parts of the body remain free; in other cases, they are only seen on the abdomen; most frequently they break out on the thighs and legs, but may likewise spread over the whole body. Grenbeck states that the disease commenced with languor and debility of the limbs, after which the pustules broke out, with intense fever. He adds that whenever these pustules or tumors burst open, they sometimes become converted into frightful phagademic sores."

This epidemic, we are told, "was a characteristically *pustulous disease*, distinguished by the breaking out of large, ugly, purulent pocks, and accompanied by horrid bone pains, and more particularly communicated by intercourse with women who were attacked by the disease." Those authors, however, do not state—and yet it would have been of great importance for us to know—whether these pustules first broke out in the pudendum, or on the face, or on the whole body; nor do they state whether the first signs of a recent infection were first seen on the sexual organs. If this was not the case, and if, according to the universal testimony of contemporaries, the infection was caught by simply touching the epidermis, or by inhaling the breath of an affected individual, such a cause must have operated much more powerfully owing to the act of coition, which, if true, would not by any means justify the idea that this plague was venereal. In addition to this, we

have the right to argue that, if this plague had been, strictly speaking, a venereal disease, the sexual organs ought to have shown the first symptoms of a recent infection, whereas, as Grenbeck justly observes, they only became affected incidentally, in consequence of the general spreading of the pustules over the surface of the body.

“Nothing is more uncertain, according to every writer of that age, than the different degrees which the syphilitic disease passed through from the time of that epidemic until it reached the present development of its diversified, but yet fixed, and at all places and times, identical forms. The only author who alludes to this point, Astruc, does not furnish any satisfactory clue to this problem. The *seven periods* in which he divides the course of syphilis, as so many transition stages to the present chronic form of this disease, can only be regarded as a substitutive explanation of the real facts. Even Fernelius, who was a contemporary witness of that epidemic, and who regards the subsequent chancre-syphilis as a gradual weakening and the precursor of a final and complete effacement of that epidemic, is unable to account for the connection of these two diseases, or for the passage of the one into the other, but contents himself with stating that the now prevalent (in the year 1540) “*lues venerea*” did no longer, like the former “*morbis gallicus*,” infect people by the air, but solely by sexual connection, or by nursing infants at diseased breasts, or that the disease might be communicated by midwives by the contact of infected sexual organs, or by the mouth of diseased nurslings, or by the spittle of infected persons when kissing, or, finally, by the insertion of the poison in parts denuded of their epidermis; and that, when the disease broke out, it manifested itself by ulcers on the infected parts, by buboes and discharges, and afterwards, after the whole organism was pervaded by the poison, by pustules on the skin, pains, etc. This shows that, even a few years subsequent to the prevalence of that epidemic, our modern syphilis was born full-fledged, even as Minerva was born armed cap-a-pie out of Jupiter’s brain, without it being possible to show the different stages through which this disease gradually marched onward to its present stage.”—[*Ibid*, p. 287–295.]

(*To be continued.*)

LEUCOCYTHEMIA.

(A paper read before the New York State Veterinary Society.)

BY PROF. J. L. ROBERTSON, M.D., V.S.

Prof. Jas. Hughes Bennett, of the University of Edinburgh, examined the body of a man who died in the Royal Infirmary laboring under hypertrophy of the spleen and liver, and whose blood was covered with corpuscles, which exactly resembled those of pus. The morbid condition discovered was separated from pyæmia, and shown to be unconnected with any form of inflammation.

An account of the case, together with one of similar character occurring in the practice of Dr. Jno. Reid, was published in the *Edinburgh Journal* for October, 1845.

Six weeks after these cases had been made public, Virchow gave the history of another in Mr. Froriep's "Notizen."

The records of medicine show the previous occurrence of like cases, although an unusual number of colorless corpuscles had not been physically proved to exist; and to Bennett and Virchow belong the renown of first discovering, in a somewhat positive manner, the nature of the disease we are about to consider; for even to their descriptions must be added new facts in relation to its reality.

The malady in question has received two descriptions. In English and French nomenclature it is known as leucocythemia (from leukos, white; kutos, a cell, and hæmia, blood); whilst in Germany the term leukhemia, from leukos, white, and hæmia, blood, has been retained as originally proposed by Virchow. Bennett considers this name faulty, as the blood is not white, but presents its usual red tinge when drawn from its vessels.

It has been, as a disease, fully admitted in the text books of human medicine, and we who are interested in the veterinary science are anxious to know if it exists in our domestic animals. English literature, as far as my knowledge extends, is silent on the subject, although cases of it may have been described in some of the journals and been overlooked by me.

The best description, I think, will be found in a brochure published by M. Ed. Nocard, Professeur de Clinique a l'Ecole Veterinaire d'Alfort.

Personally I can add nothing to his published descriptions, and I have chosen this subject in order to give a slight description of the disease, in the hope that members of the society may look up some cases. The history of the disease is an incomplete one in human medicine, and we are far from knowing much of it in our own branch; but it is a subject that would repay investigation by one fortunate enough to make a diagnosis during life, and not a surprise of the dissecting room.

As the disease has generally for its most striking feature the permanent increase of the white corpuscles, it may be well to speak of their supposed origin and fate, and of the changes the blood undergoes. They exist in ordinary blood in the proportion of 1 to 800–1,000 red, increasing after a meal to 1–300–400.

They seem to take their origin in lymphatic glands and other adenoid structures. At least corpuscles similar if not identical with colorless blood cells are to be seen in various sizes, many with double nuclei, and some, indeed, actually dividing into two corpuscles. The lymph is continually passing into the blood a number of white corpuscles, which appear in the lymphatic vessels after they have traversed the lymphatic glands. As to their fate, it would seem probable that they give rise to red corpuscles. Numbers of them die in the blood and are broken up, and when parts become inflamed they migrate, and would seem to produce connective tissue cells and fibres, blood vessels, &c.

The blood in leucocythemia, when drawn from a vein, is pale, serous, and if received on a flat vessel is soon covered by a grayish pellicle. In a narrow test tube, and kept at a low temperature, it separates in two layers, the upper milky-grayish white, the lower red.

Leucocythemia may be defined as a general disease, characterized by the hyperplastic, or heteroplastic development of lymphoid tissue, with or without increase of the white blood cells, has always a progressive anæmia, and is generally fatal.

THE VISCERAL LESIONS.—They consist of neoplasms, of which

the structure corresponds to that of the lymphatic ganglions. These neoplasms may be in the form of masses or under the form of a diffuse infiltration.

In the first case, they resemble lymphatic glands, rounded, rough, with smooth section, grayish or dirty white color. These tumors rarely break down in their centre into caseous or puriform material.

In the second case, the neoplasm consists in a diffuse infiltration into the thickness of the organs, shows itself in the opening of the membranes or in the form of serous tracks, intersected, of a dirty white color. Parenchyma looks marbled; under the microscope, there is found a deposit of round cells huddled together without apparent order. When these cells are washed out, a network of adenoid tissue, characteristic of adenoid tissue, is left behind.

The most remarkable characteristic of these lesions is the absence of all breaking down of the cellular elements in the central part of the neoplasm. This will serve to distinguish them from the lesions of glanders, tuberculosis and scrofula.

Hypertrophy of the spleen is the most frequent lesion of leucocythemia. It exists in four-fifths of the cases. It generally conserves its form; or it may be stuffed with lymphatic tumors, which causes it to assume an irregular form.

Lymphatic ganglions are almost universally enlarged in our patients, whilst in the human being in only about one-half of the cases are the glands enlarged—they generally retain their form. Their section is white or a little greyish, the structure is homogeneous, neither softening, nor pus, nor caseous degeneration even in the largest.

In the *intestines* they may be found in two principal forms, and may arise from the lymphatic elements of the intestines, the solitary follicles, or Peyer's patches, and have the appearance of white tumors, rounded or flattened, varying in size from a pea to a child's head. They result simply from hypertrophy of the pre-existing lymphoid organ. Sometimes they are enveloped in the thin layer of sub-mucous reticulated tissue, without regard to the presence of solitary or agminated follicles. The microscope

shows a net-work of adenoid tissue with a considerable number of white blood cells.

Bony Marrow.—Since Ranvier, in 1867, first described the lesions of the bony marrow, a number of cases have been observed, and it is now supposed that leucocythemia may arise from alterations in this tissue alone. The marrow appears more abundant, soft, greyish yellow.

Liver.—After the spleen and the lymphatic ganglions, the liver is more frequently affected. 10 Kilog in horse.

Respiratory Apparatus.—Lungs are frequently invaded with lymphadinoma.

In horses, the lesion is more usual as a diffuse infiltration of the inter-lobular connective tissue. Organ heavy; enlarged; it floats; it keeps its suppleness—elasticity; when you pass the hand on the surface you feel that the mass is full of firm productions; when cut, they give the sensation of a resisting fibrous tissue. They appear deep red at the bottom, with dirty-white spots running together, giving the organ a look of lobulation. There is no enveloping membrane; no central softening.

The most manifest change of the blood in leucocythemia is the modification which is produced in the number and relation of the globular elements. By examining with the microscope a drop of blood, one is struck with the considerable number of white corpuscles. The proportion is very variable, ordinarily 1-800, 900, or 1,000 in leucocythemia may rise to 1-85, 1-60, 1-12.

The white corpuscles which are found in the blood can be reduced to two general types—the first comprising large nucleated cells, or granular, possessed of amiboid movement, when one has extracted them from the circulation (leucocytes); the second being formed of free nuclei, colorless, strongly fixing the carmine, immoveable, and of a diameter nearly equal to those of hematics (red globules—globulins). In certain forms of leucocythemia there does not exist any globulins (splenic); in others, on the contrary, they are predominant (ganglionic, intestinal).

The blood which escapes from the vein is pale, serous, of a rosy hue—analagous to currant syrup diluted with water. It coagulates slowly; if it is received in a flat dish it is very quickly covered by a greyish or milky pellicle opaline, trembling.

In a narrow test tube, kept at a low temperature, the slowness of the coagulation causes it to divide into two parts—the superior of a milky-greyish white, opaline (that which resembles the opal; fluid milky, said to be opaline); the inferior, deep red. This separation of the blood in two clots is very characteristic in all animals in which the clot is monochromous.

In the leucocythemic horse, coagulation gives three distinct layers; an inferior deep red, formed of red globules; a superior slightly yellow, semi-transparent, formed of fibrine; a middle, more or less thick, formed of a dirty-white opaque, constituted of leucocytes and globulins.

General disease diasthetic, characterized by the more or less rapid production in all the organs of neoplasms, of which the intimate structure is like that of the lymphatic ganglia. These neoplasms may present themselves under form of more or less voluminous masses, or as a diffuse infiltration in the thickness of organs.

In the first case their aspect to the naked eye is still that of the lymphatic ganglions; they are more or less irregularly rounded, of slight consistence; their section is smooth, of a greyish or whitish color. On scraping, they give an opaline, milky fluid, which is shown by the microscope to be composed of a considerable quantity of lymphatic globules. No breaking down.

Signs and Diagnosis.—Leucocythemia is only a contingent fact—an accessory to—only a symptom—not constant; the essential part consists in enlargement of the lymphatic glands.

What first draws attention to the disease is loss of strength and the animal soon getting out of breath at work; the appetite becomes capricious; desire for liquids; emaciation. The mucous membranes have a porcelain-white color, as if all the blood had been driven out of the vessels. The patient becomes weaker and weaker; can hardly walk; knuckling over on hind legs; front legs separated; head and neck extended; stops from dyspnœa after a few steps; intense emaciation, or may refuse to move. Then comes constant oppression, roaring at rest, tympanites, diarrhœa foetid, œdema, hemorrhages and death in the most complete marasmus.

During all this time the temperature hardly rises above the normal. When such indecisive symptoms are observed it would be proper to have recourse to the examination of the blood; the normal proportion is so small that a leucocytosis would be readily recognized. Or a quantity of the blood may be caught in a test tube, plunged in cold water, and the characteristic separation into two layers, the upper of which is of dirty-grey color, and formed chiefly of leucocytes.

These elements may be constituted of leucocytes or globulins. The predominance of the leucocytes would lead us to think of the same disease of the spleen; on the contrary, when the globulins are the most numerous, the diathesis is localized on the lymphatic ganglions, perhaps the intestines or the marrow of the bone.

Of course, it would be another matter if we had to do with what is called *pseudo* (pseudo—false) leucocythemia. In this case the change in the blood does not consist in a superabundance of white corpuscles, but only in a great anæmia of globules.

In our animals the signs are much more vague than in the human patient, principally on account of the difficulty of exploring the splanchnic cavities.

Ganglionic Leucocythemia.—When the diathesis is localized in the lymphatic ganglia, and it has invaded those that are explorable from the exterior, then the symptoms are better marked. All the ganglia are not affected at the same time. The inter-maxillary generally hypertrophy the first, and may simulate the glands in chronic glanders. They are hard, rounded, mammillated, insensible, non-adherent to the skin, which is very yielding at their surface. But there is no discharge nor lesions of the pituitary membrane; then, too, they are symmetrical, and you will, as a rule, find symmetrical swellings of other glands in the parotid region, prepectoral, in the groin. These tumors do not ulcerate; the skin always remains the same over their surface—no adhesion.

A rectal examination will disclose a large, hard, roughened mass under the lumbar vertebræ. There may be no other lesions found at the post mortem except those of the lymphatic ganglia,

but it may be coincident with lesions of the spleen, kidneys and liver.

Mesenteric Form.—It is only at an advanced period that we might be led to suspect this form. The disease when the enlarged glands comprising the neighboring organs cause ascites or jaundice, or they are associated with some other external lesion of the diathesis that we would be likely to examine the abdomen. Percussion nor palpation may not give us any special information in our large domestic animals, but an exploration per rectum might disclose the presence of a large, irregular, hard tumor, which unites all the organs in the neighborhood.

In dogs in which the symptoms show a growing dulness, tendency to sleep, becoming insensible to the voice, lying down all day, it being necessary to strike them to make them rise, walking with head low, the jaws open (mouth open), tongue hanging, tail between the legs, panting. If these symptoms persist for several weeks, with ascites, no fear, no pain, and palpation, permits us to make out in the superior parts of the abdomen a mass hard and mammilated.

Bronchial form.—As we might easily imagine, the hypertrophy of the bronchial ganglia, situated in the anterior mediastina, in the vicinity of the heart, large arterial vessels, veins and lymphatics converging toward them with the bronchial tubes, œsophagus, pneumogastric and recurrent nerves liable to be pressed upon, is apt to cause varied and grave accidents. The respiration becomes accelerated, interrupted, with rapid panting, dry paroxysmal cough, analagous to that in heaves, but without the stethoscopic signs of that disease at a later period; they cannot go at a rapid pace nor draw heavy loads, they commence to whistle, separate their front legs, head and neck extended, nostrils widely distended, the mucous membrane becomes cyanotic, and the patient is in imminent danger of death by asphyxia. Tracheotomy in this case would not give good results unless the dyspnœa was the result of compression of the recurrent nerve. In cases where the bronchial tubes or trachea were compressed by the tumors, the operation would not relieve.

The compression of the œsophagus may cause rejection of the

bolus of food, incessant discharge of saliva, intermittent repletion of the canal, above the obstacle, and in bovines the suspension of rumination and the occurrence of frequent attacks of tympanites.

Pressure upon the veins will cause œdema of the anterior extremities, and if the arterial vessels are implicated, producing interference with the cardiac circulation, which shows itself by violent contractions and hypertrophy of the heart.

When the pneumo-gastric has been compressed by the tumors, the heart commences to beat with intense rapidity.

The spleen, liver and kidneys are so situated in the abdominal cavity of our large animals, that their exploration is almost impossible. Probably on this account have cases of leucocythemia been overlooked by our associates in practice.

Enlargement of the spleen so easily made out by percussion and palpation in the human subject, is often the lesion that will cause the medical man to think of leucocythemia.

In one case in a horse reported by Leisering, the spleen weighed about 56 lbs., causing a considerable projection in the right hypochondrium, there was difficulty in the descent of the ribs, and the enlarged spleen pressed on the diaphragm and caused intense dyspnœa.

Intestinal Leucocythemia.—The symptoms that would lead us to suspect localization in the intestines, are besides the progressive cachexia, colics, constipation, diarrhœa, accompanied by hemorrhages from the stomach or intestines.

The progress seems to be always towards a fatal termination, the organic changes never retrograde, they may remain stationary for a while, but eventually proceed to a fatal termination.

The duration is variable, it may run through its course like a galloping consumption, carrying off its victim inside of a month. In most cases it lasts five or six months.

Death is not infrequently caused by the hemorrhages that take place, from the stomach, bowels, cerebral hemorrhages, &c., or the neoplasm may invade the tissues and destroy their functional and organic usefulness, or asphyxia may result from the hypertrophy of the lymphatic glands.

So far treatment has not been followed by any success. There have been no cases recorded of a cure of the diathesis.

It has been proposed to resort to transfusion of blood when the patient passes into a menacing condition.

Removal of the spleen has not been followed by favorable results.

OBSERVATIONS ON PURPURA HEMORRHAGICA.

BY JAMES F. FRINK, V.S.

Having noticed in the late number of the JOURNAL reports on cases of purpura hemorrhagica, in nearly every case the characteristic swellings of this lesion are noticed, and in all veterinary works the student is told to accept this symptom as conclusive. No doubt it is the grand factor in forming the diagnosis, but that many cases of purpura are seen where swelling only exists, the direct cause of local irritation; that purpura may occur in so mild a form as to be almost overlooked, except by a careful practitioner, I will endeavor in as brief manner as possible, to show, by abstracts from cases occurring in my practice:

CASE 1. Subject—Black carriage mare, noticed slavering at the mouth; was treated by owner, supposing the mouth to be injured by the bit. After three or four days I was summoned to attend. Found the mucous membrane of the mouth inflamed; no symptoms of disintegration; temperature, 99; pulse, 46; watery condition of the eye. Prescribed oxymel watered till further developments, before pushing treatment further. 2d day. Small granules beginning to form on the gums of incisor teeth, like millet seed. The tongue on the inferior aspect of a livid purple hue. The lips much swollen, discharge thick, tenacious mucous from the mouth. Suspicious of purpura, commenced chlorate of potass. treatment, given in a form of powder, three a day; the animal eating with difficulty. Temp., 100°; pulse, 50. 3d day. The swelling extended to the nostrils; disintegration of the tissues; sloughing of the gums, lips, portions of the tongue; the discharge very offensive; excoriations on the perineal space, discharging thin sanious matter; the whole body covered with an eczematous eruption, vesicular, terminating without suppuration; inability to eat; the

mouth washed thrice a day with antiseptic solutions; chlorate of potass. being given in full doses. Temp., 103; pulse, 60. 4th day. Symptoms the same as previous day. Injections given every day, keeping the bowels all right.

5th day. Opened with a mild attack of diarrhœa; mouth about the same; scabs forming on the region of the nose and lips; animal taking a little gruel, sucking it up into its mouth a little at a time; same treatment continued. Temp., 102½; pulse, 58. From this time the animal improved, and rapidly became convalescent. This is a case where distinct symptoms of purpura were present, yet no corded swellings were visible. I give you a synopsis of this case in the rough, but I think I have said enough to convince your readers of the accuracy of the diagnosis.

CASE 2. Presented same symptoms as case 1, save that the characteristic swelling of purpura was plainly visible, extending from the scapula to the last rib in the shape of a right-angled triangle, having the posterior border of the scapula as a base.

CASE 3. Bay trotting mare; noticed slavering at the mouth, though the owner told me he was much better than formerly; thought probably the teeth were irregular; on examination of the mouth the foramen lingua was found to be in an easily lacerable condition; under surface of the tongue purple, and covered with small millet seed granules farther up; under the tongue a large patch was found eroded, but presented a healthy appearance. I made up my mind the animal was and had been suffering from purpura. Phenic acid, 1 to 100, was ordered as a wash, strychnine and iron ordered as a tonic. The animal rapidly convalesced.

CASE 4. Two-year colt; noticed to be losing flesh; owner thought probably worms; examination revealed exactly the same state of affairs as in the last mentioned case, except the sub-maxillary glands were considerably enlarged, and led me at first sight to think it a case of strangles; a more careful examination led me to think otherwise. The animal was put on the same treatment as the last mentioned case, and rapidly convalesced.

Whether these last two cases were pure cases of purpura, perhaps is open to discussion. In neither case were the "character-

istic" swellings of purpura noticable; yet, from the appearance of the tongue and general languor, I was led to form my diagnosis. If you think these cases worthy of publication, I will feel amply repaid. Much more so if they should be the means of adding any further interest to this disease, which presents such a large field for discussion.

EDITORIAL.

LEGISLATION REGULATING VETERINARY PRACTICE IN STATES.

There is at present a general desire among veterinarians to secure legislation to regulate the practice of veterinary medicine in several of the different States. This attempt has already been made, and the success is, to say the most, but partial, if not entirely negative in some instances.

Why is this so? There must be some reason why the veterinary profession is denied that protection that is given the practice of human medicine. We cannot impugn the wisdom of our legislators in refusing to enact the bills already presented before them.

The fact, then, of the failure up to this time in securing legislative enactments, would seem to argue that the bills have been defective in popular estimation, and hence the necessity of framing a proper bill to be presented at our next Legislature. With this object in view, we hope that different members of the profession will forward to us for publication drafts of bills, or any suggestions they may have to make concerning this subject. From the different opinions thus expressed there can probably be formulated a bill that will be unobjectionable, and one that will better secure the rights of the veterinarian, and give to our patrons that guarantee to which they are entitled.

CENTRALIZATION IN VETERINARY MEDICINE.

It must be a source of just pride to all veterinarians when, in the study of the history of veterinary medicine in the United

States, we note the rapid progress that has been made. This progress, too, is not ephemeral. It has permanently lifted us from mere charlatanism, and placed us in the estimation of all as a scientific profession.

Having gained this recognition, it behooves us to keep up the standard of our profession; to work zealously in its interests; and by whatever means we possess to merit the good opinion of others. It has occurred to many that we lack organization, and this leads us to suggest the formation of a National Veterinary Society, this society to consist of delegates from all the different local societies throughout the country, and to be in reality a sort of *executive*, and to take in hand principally those questions that relate to the welfare of the profession as such. What we want is greater unity of action, and this can best be had through the instrumentality of some such association as above suggested.

NOTICE.

On account of the absence of Prof. Liautard, who sailed for Europe on June 21st, the August number of the REVIEW will not be issued until September. The interests of the veterinary profession in America are the chief objects of Prof. L's visit.

PATHOLOGICAL HISTOLOGY.

A METHOD OF RAPIDLY COLORING AND PRESERVING PARASITES
BY EOSINE AND POTASH.

BY T. BALZER.

Beginners in the histological study of parasites experience great difficulties in obtaining clean preparations of easy preservation. The method of Weigert gives fine results, but is difficult and complicated. In our researches touching the parasites of the skin, we have for some time employed a simple proof, which has given us excellent results in the study of the tricophyton, the achorion, the microporon and other species. We have applied it

to the searching and coloration of microbes, and it is indeed applicable not only to the demonstration of the epidermis, but also to the parasites of the liver, the kidneys and the muscular and other tissues. This proof is based upon the use of eosine as coloring matter, and then to the potash solution to clarify the preparation and bring out the parasites. Potash has for a long time been recommended for the discovery of parasitic cutaneous affections. Employed alone, it gives excellent preparations, but lacking in the quality of permanence. On the contrary, when eosine has first acted upon the isolated fragments of epidermis or upon hairs, or sections of the tissues to be examined, the potash acts effectually in fixing the coloring matter upon the parasites by clearing up the surrounding parts. As the action of acetic acid upon carmine fixes it in the nuclei of cells, so does that of potash fix the eosine upon those of spores and myceliums.

This is, therefore, more like a modification of the whole process, than a new one. It is, however, so simple and so rapid that we have felt constrained to publish it for the public advantage. The *modus faciendi* is this :

After freeing the segment or fragment to be examined of oily or greasy particles, by treatment with æther or alcohol, it is placed in a saturated alcoholic solution of eosine, where it is suffered to remain for a length of time, which varies according to the bulk of the object. From half an hour to an hour is generally sufficient; achorion is colored in a few minutes. The excess of eosine is then washed with distilled water. This is an indispensable precaution, as in the solution of potash, the free eosine forms lumpy masses which interfere with the clear appearance of the preparation. Instead of distilled water, it may be better to use the solution of potash. At last the fragment to be examined is left in the potash solution, 40 per 100, and protected with a glass cover. During the succeeding days, any loss by evaporation is replaced by the addition of one or two drops of the solution.

After a few days, and sometimes even after a few hours, the preparation is sufficiently clear and the eosine sufficiently fixed upon the parasites. The solution of potash evaporated is then replaced by a saturated solution of acetate of potash, introduced only at the edges of the glass cover, which is to be surrounded

with paraffine or wax, and the preparation may then be kept for an indefinite period.

The manipulations, however, require some precautions. The potash having the property to separate and soften the elements, care must be taken to avoid disturbing or moving the glass cover while examining the specimen, or they may be entirely spoiled, though once in the solution of acetate of potash, the elements will regain some of their consistency. * * * *

We employ this process in coloring the microbes of liquids; in urine for instance. It is sufficient to add one drop of the liquid to be examined to two or three of the alcoholic solution of eosine—to leave it alone until all the liquid has evaporated—to add again one or two drops of the solution of potash, 40 per cent. or the solution of acetate of potash, and the preparation will be detected in their clearest condition.—*Gazette Medicale*.

ZOOLOGY.

ON THE VITALITY OF TRICHINÆ ENCYSTED IN SALTED MEATS.

BY M. TOUSSAINT.

We learn from the researches of the author, that in salted preparations of at least fifteen months old, trichinæ are not only seen alive, but have rapidly passed through their entire changes in the digestive canal of a new host, and produced in him fatal accidents.

He remarks that “one cannot affirm that the action of salt is sufficient to kill the trichinæ rapidly and with certainty; they may die in salted meats as well as in any other medium, and that this explains the negative experiments published by some distinguished observer.” But they may also live in it for a considerable time, without our being able to determine what may be the duration of the period necessary for death to succeed to the latent life. It is well also to repeat the fact that salting too often fails to kill trichinæ, and has also the effect of rendering their detection more difficult. The old experiments of Dayere made this fact probable. The recent researches of Laborde made it evident.—*Gazette Medicale*.

EXTRACTS FROM FOREIGN JOURNALS.

VOLVULUS IN A HEIFER—RESECTIONS OF A PORTION OF THE
INTESTINES—RECOVERY.

BY P. J. T. SACCVEN.

A heifer, two years old, was taken with colics while returning from drinking. Her condition was good; her pains not very severe; nose dry and hot; pulse strong and quick (130); complete anorexia. She strikes at her abdomen, especially toward the right flank; stretches herself, with her hind legs crossing each other right and left; her tail, elevated, shows an alternate contraction and relaxation of the anus. She voids a small quantity of soft fœces, thin, semi-liquid, and soon nothing but bloody mucosity. There are frequent and incomplete pandiculations, stimulated by the pinching of the vertebral column; also sometimes when the animal lies down. The left flank has its normal form, but on the right side the ventral wall, slightly raised, is flabby and depending, and the concavity of the flank then seems increased.

Shaking at the right flank is followed by a noise of displaced liquid in that region. Pressure in the flank is painful.

Rectal examination gives, on the right side, lying on the inclined surface of the rumen, an elongated cylindrical tumor, quite dense and painful to pressure. A diagnosis is made of *volvulus* or *intestinal invagination*.

A drench of sulphate of soda, with rapid exercise, are prescribed, with a hope that the intestines may by the movements of the animal be returned to their place. No change, however, takes place.

The next day the condition continued unchanged; small pulse, of 150; dry and cold muzzle; looks less anxious; the animal still kicks at her flank. Bloody mucosities are passed through the anus; no excrements. Same treatment, and same negative result.

This condition lasted for six days, when the symptoms growing worse, Mr. S. decided to open the abdomen and act directly on the diseased organ.

For this purpose the animal was thrown on the left side, and the operation of *saparatomy* performed in the hollow of the right flank, at an equal distance from the external angle of the hip to the last rib, following the rules laid down by Prof. Degire.

The muscles being carefully dissected, and the abdomen opened, some five or six liters of citrine serosity escaped, while about the same quantity remained in the abdomen. The hand being then introduced into the cavity, the invaginated intestinal part was easily detected, forming a cylindrical tumor, curved lengthwise, on the insertion of the mesentery, its external surface of a dark red color, its largest diameter measuring 30 centimetres. On one side the intestinal canal is distended by gases, but the other is quite free from flatulence.

The invaginated parts having contracted adhesions with the other, it became impossible to separate the two portions, and a laceration of the coats of the organ having followed an attempt to effect a separation, there remained but the resection of the diseased parts, and the sewing of the two ends together. Two cuts of the scissors divided the intestines, at points where the tissues seem healthy, great care being taken that none of the contents of the intestinal canal escape into the abdominal cavity. The mesenteric attachments are carefully torn, without hemorrhage, and the two ends of intestines brought together, resting on each other on the serous layer, and stitched with a curved needle, by a tailor's suture, involving the external and middle layer. The intestines were then carefully washed, and replaced in the cavity. A quill suture completed the operation in closing the external wound.

The two intestinal cylinders thus removed were both in an advanced state of gangrene. The entire length of the resected organ measures 0.90 centimetres.

Slight fever followed for a few days. On the second day the animal passed liquid fecal matter; on the fifth she ruminated; on the seventh defecation was normal; on the eighth the stitches in the skin were changed to an interrupted suture; thirty-five days after the operation the recovery was complete.

When she was slaughtered by the butcher, after falling, the abdomen showed a small fibrous cord, about three centimetres long, uniting the intestines and the abdominal walls, where the

incisions were made. The intestines at the point where the resection was made showed a slight, very narrow, circular contraction, formed by cicatricial tissue of fibrous nature. On the mucous membrane there was a circular roughness, formed by the united folds of the two intestinal extremities. No trace was left of ascites or peritonitis.—*Annales de Brussels*.

VOLVULUS IN A COW—RESECTION—FORMATION OF AN ARTIFICIAL ANUS.

BY THE SAME.

In a second case, by the same author, a cow, half termed with her second calf, was taken with the same symptoms as those described in the first case, and the disease resisting the treatment prescribed, saparotomy was performed 36 hours after the first manifestations appeared.

The operation was performed in the usual way, and a volvulus larger and longer than in the first case was found. It measured 55 centimetres, and no less than one metre and 80 centimetres of intestines had to be resected.

The fever following was moderate, and on the second day natural defecation took place.

On the sixth day she showed some signs of abortion, which subsided within three days without further development.

On the seventh day the aspect of the wound was bad, and a stercoraceous odor was well marked.

The stitches being dressed, an accidental anus was discovered, through which semi-liquid fœces passed. Several attempts to close this artificial anus by circular ligature, or by dressing the wounds, were given up as impracticable. Still, when this opening was closed, defecation took place by the natural canal. The animal feels well, and eats and ruminates as in perfect health.

She was destroyed. At the post mortem one of the faces of the intestines and the wall of the flank were united together by myoplastic structure, and at the centre of this is found the deep opening of the artificial aperture, which empties itself on the right flank. The intestines present the same characters as in the first case. The uterus contains a dead fœtus.—*Annales de Brussels*.

ENORMOUS HEMATOMA PRODUCED BY THE RUPTURE OF THE LEFT MAMMARY VEIN IN A COW.—RECOVERY.

BY M. LAMBERT.

The subject of this case is a cow eleven years old. While she returned from pasture, after drinking from a trough placed near a well close by, she appeared in perfect health. After being a few minutes in the barn an enormous tumor was observed on the left side of the abdomen, extending from the mammaræ to the middle of the belly.

When visited, she was found in a comatose condition, with tremblings of the crural muscles; pulse small and frequent (80); visible mucous membranes pale. The tumor had an irregular form, measuring 68 centimetres in length, 18 centimetres in thickness, extending backwards up the left flank, and diminishing forward, gradually ending in a triangular shape. The temperature of the skin was normal. The tumor was resisting to pressure, but pitting at some points. It was not painful to the touch and was normal in color, except at some points where it showed ecchymotic spots. Rectal examination revealed ventral hernia. The diagnosis was at first uncertain.

The day following there was anorexia; pulse small and weak (90); rumination stopped; milky secretion diminished; defecation normal. The swelling had increased and extended to the right side. The skin of the left side had become sensitive from frictions with liniment, applied the day before. Upon exploration with a fine trocar a strong stream of venous blood made its appearance. An incision of one centimetre gave rise to an abundant hemorrhage, which had to be stopped, checked with pads of oakum pressed into the wound. An examination of the mammary veins showed that of the left side depressed or flattened, while that of the right had not lost its natural prominence. The diagnosis was that of a rupture of the vein, taking into account the considerable size and rapid development of the tumor, the stream of mucous and blood following the exploration with the trocar, the presence of an ecchymosis on the surface of the swelling, the pale condition of the visible mucous membranes and the symptoms of the left mammary vein; the cause of the accident was not made out.

The treatment consisted in bitter and analeptic tonics, with stimulants and iron water with bran for drinks. Two days after the appearance of the swelling, the tumor had changed in character, coagulation of the blood having taken place. The animal was then thrown down, a large incision made, and a clot of blood extracted. Its size represents about four liters of blood. Astringent carbolized dressings were put on, with a quill suture. The next day another clot of the same size was removed and the wound left open and watched against a return of hemorrhage. The internal treatment was continued, granulations were formed, and in about two weeks entire convalescence was established. The secretion of the milk on the left side has entirely ceased.—*Annales de Brussels*.

ISCHURIA DUE TO AN INTRA-PELVIC ABSCESS FOLLOWING THE
OPERATIONS OF ENTEROTOMY.

BY TH. VIOLET.

A Percheron stallion, eight years old, employed in omnibus service, was treated for flatulent colic by puncture of the cœcum. Three weeks after he seemed to have entirely recovered, though for the last few days he seemed to have some difficulty in urinating. The difficulty has been slowly increasing, until now he can only pass a few drops of urine.

When brought to treatment, he seemed depressed; had no tympanites; loins stiff; pulse strong, sixty per minute. If in the stall, he lies on the left side and remains quiet, after a few instants rising and trying to micturate, and making violent efforts, sometimes passing a few drops, at other times nothing. Rectal examination reveals a round mass, which seems to be of the size of a man's head, which is taken for the bladder much distended. This again excites the efforts of the animal to pass water, but in vain. The urethra shows no dilatation in any point of its extent. Catheterization becoming immediately necessary, was followed by the escape of about seven liters of very thick urine, and the animal seemed relieved. The treatment prescribed consisted of injections of decoctions of flax-seed, with fifteen grammes of oil of

turpentine, to be given in his drinks ; also an emollient sachet to be placed over the kidneys.

The next morning the animal seemed to be doing well, but in the middle of the day the same symptoms and difficulty returned, but when introducing the catheter the instrument fails to reach the bladder, and the operation of perineal urethrotomy seems to promise the only chance of relief. This was done immediately, with some difficulty, and a flexible sound was easily introduced into the bladder ; but a straight metallic instrument entered only a limited distance in the urethra, and there met with an obstruction which it was impossible to overcome. This time *eight liters* of urine were extracted. The animal after this was relieved twice a day. The patient seemed to be doing well—but the retention of urine remained the same.

Rectal examination then made by Mr. Violet revealed the presence of the tumor in the pelvis (which proved not to be the bladder). It was situated to the right, about 15 centimetres from the anus ; was firmly fixed, and had the consistency of a phlegmonous tumor. It was closely connected with the urethra, being slightly elevated by the catheter where it is introduced. This tumor explains all the symptoms of the difficulty of micturation. But what is probably its nature ? Perhaps melanotic ; but the animal shows no sign of melanotic deposits on the external portions of the body. Can it not be an abscess, a complication of the puncture made in the cœcum some months before ? At any rate, the prognosis is serious. Two days later, the urine removed through the catheter was whitish and slightly milky, showing under the microscope a large number of pus globules. Five days later, only two liters of urine were removed with the catheter. The animal must have passed some himself ; indeed he was seen doing it, and it was then very white. The tumor in the pelvis when again examined, had diminished in size, and had lost its hardness. It became softer, contracted upwards in the pelvis, ceased to press the urethra, and the animal was discharged convalescent, relieved of his trouble by the opening of the abscess into the urethra and the discharge of its contents, mixed with the urine.—*Journal de Zootechnie.*

CORRESPONDENCE.

LEGISLATION REGULATING VETERINARY PRACTICE IN NEW YORK STATE.

ROCHESTER, N. Y., May 14, 1882.

Prof. Liautard :

I send you the draft of a bill for regulating the practice of veterinary medicine and surgery in this State, which, if it meets your approval, and that of your veterinary friends, I think we can procure the passage of. I think it is the best we can get at present. The bill is prospective in its action in the main, though I think the knowledge required by section three to be verified by oath, will prove to many who are now practicing, to be nearly iron-clad. Many would hesitate to take it. It puts a stop to young men continuing practice who are under twenty-five years old, and compels them to qualify themselves by a collegiate course or by certificate from the New York State Society, and this will be a great step in advance. It in reality gives your college and your State Society future control of veterinary practice, with which organizations I think it most safe to trust it. If you will inquire into the matter, I think you will find that the legal fraternity, in making rules and regulations for the practice of law, make their rules prospective in their action and not retroactive; so, too, you will observe that the laws that have been passed by different States regulating the medical practice, are prospective and not retroactive, and this accords with the spirit of our Government. Illinois, which passed a law in 1877, exempted from its prohibitory sections all who had been practicing medicine ten years within the State. New Hampshire recently passed a law and exempted from its prohibitory clauses all who had been in practice in the town and city of their present residence during all the time since January 1, 1875. Pennsylvania exempted from her prohibitory clauses those who had been in continuous practice of medicine and surgery or obstetrics for ten years in the commonwealth. The California law is much like that of Illinois. Texas exempted those who had been engaged in the general

practice of medicine or any of its branches in the State for five consecutive years prior to January 1st, 1875, and also any female who might follow the practice of midwifery strictly as such. Others, I presume, might be added to the list, that have shown the same regard for old practitioners who were not graduates.

If this bill meets your approbation, and you will get it introduced at an early day in the Legislature, I will pledge you my hearty cooperation, and think I may say that of a majority of the veterinarians in Rochester.

EZRA MINK.

AN ACT TO REGULATE THE PRACTICE OF VETERINARY MEDICINE
AND SURGERY IN THE STATE OF NEW YORK.

The People of the State of New York, represented in Senate and Assembly, do enact as follows :

SECTION 1. It shall be unlawful for any person to practice veterinary medicine and surgery, or any of its branches, in the State of New York, unless he shall have received a diploma from some veterinary school, college or university, or a certificate of qualification from the New York State Veterinary Society, each of which institutions shall have been legally chartered or incorporated by the Government under which it exists. *Provided*, That nothing in this section shall apply to any person over twenty-five years of age, who has been engaged in the actual practice of veterinary medicine and surgery for three years within this State, previous to the passage of this act, if he possesses the knowledge required (to be stated) in section 3 of this Act.

SECTION 2. It shall be the duty of the State Veterinary Society to appoint a Board of Censors or Examiners, and to hold semi-annual meetings, of which they shall give due notice of time and place, at which they shall examine applicants presenting themselves. Said examinations shall be of elementary and practical character, but sufficiently strict to test the fitness of the applicant, and if found qualified they shall issue to him a certificate of the fact, for which the society shall be paid the sum of five dollars by said applicant.

“My own experience and the observation of others in several schools, compels me to the conclusion that such instruction should either be received before entering the school, or, after entrance rigidly restricted within very narrow limits, according to the practical advantage desirable therefrom.”

Of course there should be a complete set of normal osteological specimens, illustrative of the various stages of development in the human being, and arranged in serial order; also the pathological conditions of bony tissue should be represented, and particular attention should be paid to the preservation of the soft parts of the body, both normal and pathological.

Normal.—I would suggest the careful preparation of an extended series of dissections of well injected specimens, to illustrate the anatomy and *physiological relations* of certain important portions of the body; these to be mounted and permanently preserved in clear glass jars, and used for public, class and laboratory instruction.

In regard to such preparations it may be argued that it would be better for the student to make the dissection himself, and that their permanent preservation involves an unnecessary waste of money and labor. But it must be remembered that the majority of medical students have not the necessary skill to make these artistic dissections. Furthermore, to make them it requires much time, and even if the necessary skill were possessed by the average medical student, it would not be advisable to have him spend so much of his valuable time in almost purely artistic work. One of the great secrets of a successful life is to avoid unnecessary expenditure of time and labor. The medical student should certainly dissect every part of the body most thoroughly, and make out from his dissections the exact relations of the parts. But the point I wish to make is that it would be time thrown away for him to attempt such artistic work when his medical pupilage is so short. And, further, it is always desirable to have such specimens readily accessible for demonstration.

Pathological.—Specimens representing the pathological changes in the soft parts should be carefully prepared and mounted in the same way as suggested for the normal soft parts, care being taken to illustrate as fully as possible all the pathological changes which are known to take place in a given organ or part of an organ. Corresponding to the number on the label of such specimens, there should be kept in a suitable book, always accessible, a full account of the clinical history of the patients from whom they were taken, and thus they will be made doubly useful to both student and professor. Such specimens as these should always be accessible to medical men for the purpose of illustration or description, in their writings.

A full supply of histological and pathological specimens should be expressly preserved and kept in stock for those who wish to study them microscopically, and prepare therefrom a typical series of permanent preparations for future reference and study. These specimens need occupy but very little space, for they can be placed in earthen or cheap glass jars, labelled and set away in some convenient place in the *laboratory* of the museum.

A set of plaster casts representative of the various *peculiar* deformities, previous to the treatment, which result from disease, fractures or dislocations, would be of service for study and class instruction.

A series of preparations of all the important joints of the body, especially

intended to illustrate the *surgical* relation of their component parts, would be certainly of great practical utility.

Among other specimens which it would be desirable to have in a museum would be, "A series of embryos of some of the common animals. All *embryos* are, in some respects, more valuable than adults. A series of brains should be added; a dozen species would fairly illustrate the modifications of the vertebrate encephalon. And the truth of Prof. Wyman's saying should be realized, 'A skull is doubled in value by cutting it in two.'" (Wilder, 13.)

As a rule all objects displayed for public instruction should be *typical*; a few "aberrant" forms, however, are desirable.

But space will not permit me to go further into details; I have given what I consider to be the indications in selecting objects for a medical museum, and it requires but the supervision of an intelligent director to carry them out.

IV.—*How should the contents of a museum be arranged?*

The importance of arranging the contents of a museum so that it will be conducive to the advancement of general education and technical instruction to the fullest possible extent is evident to all, but the final answer to this question is far from being practically and satisfactorily given, and the demand for intelligent reform is urgent.

In 1869, a competent naturalist, after visiting fifty of the principal museums in Europe, reported on them in the following terms: "So far as his observations extended, he found no museum where any other purpose than a desire to produce a convenient and pleasing disposition of the specimens was manifest in the general plan of arrangement." (16, 138.)

Prof. Flower states that museum specimens "should be in exactly the same circumstances as the books in a well arranged library, and ought to be equally accessible under suitable regulations." (2, 11, 61.)

The tendency on the part of museum managers to expose to view a chaotic mass of specimens, has been keenly criticized by Prof. Huxley, and at the same time he has given the indications for remedying the evil:

"What we need in a collection of natural history, is that it should be made as accessible and as useful as possible, on the one hand, to the general public, and on the other hand to the scientific workers.

"That need is not met by constructing a sort of happy hunting-ground of miles of glass cases, and, under the pretense of exhibiting everything, putting the maximum amount of obstacle in the way of those who wish properly to see anything.

"What the public want is easy and unhindered access to such a collection as they can understand and appreciate; and what the man of science wants is similar access to the materials of science. To this end the vast mass of objects of natural history should be divided into two parts—one open to the public, the other to men of science every day. The former division should exemplify all the more interesting and important forms of life, the latter should contain, packed in comparatively small space, in rooms adapted for working purposes, the objects of purely scientific interest." (17, XV., 219.)

The plan proposed by Prof. Huxley, I think, is far preferable to any other that has yet been suggested. It has the advantage of enabling students of science to study undisturbedly and in detail, such objects as they may desire,

while the public or cursory observers have full access to the specimens which are most intelligible and interesting to them. The question now arises, how are we to arrange the specimens in each of these two main divisions of the museum?

The arrangement of the specimens which are to be for the use of the students of science, may be dismissed from consideration at once, for in the hands of such they will naturally be accessibly disposed of. Not so with the specimens which are for public instruction and are to form the attractive feature of the museum. In order that these specimens may serve the purpose for which they were intended, much judgment and painstaking are necessary to place them in their proper relations, for as I have previously remarked, upon their arrangement in accordance with some definite plan depends very largely the favorableness of the impressions which are to be carried away by those who inspect the collection.

Dr. Sclater is an advocate of what is called the "typical" or what he thinks would be a better term, the "representative" system of arrangement (15). He is supported in this view by Prof. Huxley, (6,353), Prof. Wilder, (13), and in fact the best men of science to-day, generally.

What we want in the arrangement of the contents of a museum, is to bring the various specimens exhibited into a *natural or living relationship*.

V.—*How can the material thus collected be made most useful?*

If I were to reply in a summary way to this question, I would answer, 'Use the material thus collected as the basis for a course of *museum laboratory instruction*, which will train young minds to do accurate observational work, thus developing the three great functions of the intellect, discrimination, agreement and retentiveness, while at the same time increasing the extent and diffusion of biological knowledge.'

One great object in teaching students should be to rid them of their willingness to memorize second-hand material as it is found in books, and to form a desire for that kind of knowledge which is to be gained only by observation of things themselves. Prof. Flower, speaking of the value of such knowledge, remarks:

"It is now generally admitted that a thorough and practically useful knowledge of the form and other properties of natural bodies can only be acquired by the examination of such bodies themselves. The difference between knowing a thing by description only and knowing it from personal acquaintance, need be scarcely insisted on." (22).

Of the great importance of biological work, especially to the medical student, that eminent authority, Prof. Huxley, has said:

"To all those who intend to pursue physiology—and especially to those who propose to employ the working years of their lives in the practice of medicine—I say that there is no training so fitted, or which may be of such important service to them, as the thorough discipline in practical biological work which I have sketched, as being pursued in the laboratory hard by." (17, XV., 219).

As evidence of the value of museums for this purpose I quote from the recommendations found in the Fourth Report of the Members of the Royal Commission on Scientific Instruction and the Advancement of Science, which was mainly concerned with the scientific museums and collections of the metropolis. Speaking of the Museum of the Royal College of Surgeons, it is recommended:

"That, should the fund at the disposal of the college prove inadequate for the

efficient maintenance and continued extension of the museum, it should receive support from the State, as an institution intimately connected with the progress of biological science in this country." (IX., 397.) For further evidence on this point I quote again from Prof. Huxley:

"Without doubt there are no helps to the study of biology, or rather to some branches of it, which are, or may be, more important than natural history museums; but in order to take this place in regard to biology, they must be museums of the future. The museums of the present do not by any means do so much for us as they might." (17, XV., 219.)

A writer in *Nature* remarks: "We see no reason why museums themselves should not be occasionally converted into lecture rooms, where teachers could bring their zoological, geological and other science classes, and find well-arranged material for illustrating their lessons." (20, XV., 276.)

But the true function of our medical museums, in addition to providing for public instruction, should be to afford facilities for a course of instruction which will give medical students an opportunity to personally observe *facts*, and the impressions which follow will be clear, definite and permanent, and hence far more valuable than any plagiarized information which they can gain from books or even lectures. Huxley has said that students in the laboratory under the guidance of competent demonstrators "should work out facts for themselves and come into that direct contact with reality which constitutes the fundamental distinction of scientific education." (20, XIV., 546.)

It has been said upon good authority that the most effective teaching is that which makes the pupil teach himself. Miss Youmans has well remarked that:

"Observation is the starting point of knowledge, and the basis of judgment and inductive reasoning. In the chaos of opinions among men, the conflicts are usually on the *data*, which have not been observed with sufficient care. Dispute is endless until the facts are known, and, when this happens, dispute is generally ended." (23, 297.)

From the above it is obvious that the best and soundest way of giving instruction is by that method which elicits the "native" powers of the student and makes him take an active part in the process by which knowledge is acquired.

If this kind of training which it is so desirable that every medical student should have, can be obtained by a graded and systematic course of observational study upon those forms, a knowledge of which has a direct and practical bearing upon the professional duties for which he is trying to fit himself, I think the evidence is *prima facie*, that the time is now ripe when at least the first tentative steps towards its realization should be taken.

(*To be continued.*)

NEWS AND SUNDRIES.

FOOT AND MOUTH DISEASE has again appeared in several dairy districts of England.

APPRECIATION.—It is with great pleasure that we note the uniform praise that is given the American Veterinary College by agricultural and stock journals.

NEW BOOK.—Prof. Stewart's new book on "Feeding Animals" will not appear before August. This work will also include the subjects of Buildings, Proper Ventilation, etc.

ANCIENT SURGERY.—A remarkable collection of surgical instruments has been discovered at Pompeii and removed to the Naples Museum. It evidently belonged to one practitioner or establishment, and is as large an equipment as the modern surgeon is usually supplied with.

CORRECTION.—T. L. Harrison, in *The Live Stock Journal*, refers to an article in the REVIEW, which he interprets as advocating inoculation for pleuro-pneumonia. We intended to say that this disease should be *stamped out*, and if this is not done, that inoculation is the only remedy.

PENNSYLVANIA FREE FROM LUNG PLAGUE.—Dr. J. W. Gadson, State Veterinarian of Pennsylvania, writes us, under date of May 31st, that he is now able to certify the State free from the lung plague, and that it has been free for the past three months.—*Breeders' Gazette*.

THE DANISH VETERINARY SOCIETY has offered a prize of 2,000 francs, and a second of 1,000 francs, for the best essays on the benefits to living animals which have resulted from vivisection. The essays may be written in Danish, Swedish, English, French, or German.

A RUMOR that pleuro pneumonia had broken out in Pottawatomie county, Kansas, has been promptly denied by the stockmen of that locality. But it is still asserted that black leg or something similar has appeared in Morris county.—*Prairie Farmer*.

INTERESTING STATISTICS.—The report of the number of dead animals received at the rendering dock of the city of New York for the year ending March, 1882, shows that 8,000 horses, 150 cows, about 200 sheep and 23,000 dogs were received at that establishment. An inquiry might be made, where are the hogs which died in New York, or are found dead in the trucks of the railroads which bring so many of those animals into our metropolis—are they turned into hams and sausages? Our Board of Health might enlighten the public in answering the question.

A VALUABLE COLLECTION.—Prof. C. V. Riley has deposited in the United States National Museum his extensive private collection of insects. The collection comprises some 30,000 species and upward of 150,000 specimens of all orders, and is contained in some 300 double-folding boxes in large book form and in two cabinets of eighty glass-covered drawers.—*American Cultivator*.

A VERY BIG HORSE.—John B. Pember, a *Farm Journal* subscriber, of Maynard, Iowa, claims that he has the tallest horse on the globe. He writes that his “exact height in a close scale is 20 hands, $1\frac{1}{4}$ inches, without shoes, and for style and action he can’t be beat. He has a long, arched neck, measuring from his ears to where his mane starts on his withers five feet, and around his neck where his collar comes, six feet. His limbs and feet are as beautiful as any turf horse.”

WHOLESALE VACCINATION.—Since last June, M. Pasteur has vaccinated 90,000 head of stock, among which were 10,000 oxen, cows and horses. In every instance his process was successful; the animals vaccinated escaped the charbon malady, while those non-vaccinated fell victims to that plague. M. Pasteur—and others have corroborated his view—lays down that the effects of his preservative vaccine do not last longer than eight months, so that vaccination must be repeated annually, and that April is the best month for executing the operation.

PERRONCITIO reports that: The *cysticercus cellulosæ* (of the hog) dies, at times, when the temperature is raised to 47° Centigrade ($116^{\circ} 6$ Fahrenheit); generally, however, 48° C. ($118^{\circ} 4$ F.) were necessary, and in a few instances 49° C. ($120^{\circ} 2$ F.) had to be employed. Death never failed to occur with a temperature of 50° C. (122° F.), provided this degree of heat be kept up for at least one minute. The *cysticercus bovis*, according to the same learned observer, is *sometimes* killed by a temperature of 44° C. ($111^{\circ} 2$ F.); *often* by 45° C. (113° F.), and *always* by 46° C. ($114^{\circ} 8$ F.); it has never been known to survive heat ranging between 47° C. and 48° C., provided the exposure lasted five minutes.

LUSUS NATURÆ.—Dr. Griener, veterinary surgeon, of Indianapolis, Ind., reports the remarkable case of a cow in giving birth to a calf. The afterbirth preceded the birth of the animal, and when born the skin looked like that of a calf, the legs like those of a hawk, the head like the skull of a negro, and the body like that of a dog. The animal was stillborn, and has been preserved for the benefit of science. It can be seen at any time at the doctor's office, at Indianapolis, previous to its removal to the Anatomical Museum.—*Turf, Field and Farm*.

LIVE STOCK IN THE UNITED STATES.—The Census Bureau, at Washington, has issued a bulletin, showing that the live stock of the United States on farms on June 1, 1880, was as follows:—Horses, 10,357,981; mules and asses, 1,812,932; working oxen, 993,970; milch cows, 12,443,593; other cattle, 22,488,500; sheep, 35,191,656; swine, 47,683,951. The rate of increase from 1870 to 1880 was: In horses, 45 per cent.; mules and asses, 61 per cent.; working oxen, a decrease of 25 per cent.; milch cows, increase of 39 per cent.; other cattle, 66 per cent.; sheep, 24 per cent., and swine, 90 per cent.—*Turf, Field and Farm*.

GOITRE IN THE LOWER ANIMALS.—Goitre is not an affection peculiar to man alone (*Cincinnati Lancet and Clinic*). M. Adam, veterinary surgeon at Augsburg, has remarked that after staying a certain length of time in that city a number of horses were attacked with goitre. There are only a certain number of stables where goitre shows itself, all situated at the east of the city. It is impossible to determine the cause of it. Goitre is not rare with the dogs of Augsburg, and is unusually frequent with the inhabitants of that city. The disease does not prevail in Switzerland, however.—*Medical Record*.

A NEW HORSE FOOD.—The Marlin (Texas) *Index* reports a newly discovered food for horses in Falls county, that State. In the Brazos bottom grows a weed, in height 15 or 20 feet, that is said to be almost as nutritious as corn. It is called the "blood-weed," from the fact that when broken there escapes a juice which is almost as red as blood. Many farmers feed their work-

stock but once a day with corn. The other two meals are made by "staking" on blood-weed. There are many instances where crops are raised by feeding the work-stock exclusively on this weed.

A NEW VESICANT.—Dr. José Armengue, of Barcelona, has lately brought to the notice of the profession a new vesicant, which in many respects would appear to be far superior to cantharides. The new material is derived from the *Ænas afer*, a coleopterous insect, which at certain seasons of the year appears in enormous quantities in many parts of Spain. From experiments which Prof. Armengue has instituted, on his own person and on several medical students, he is led to claim for the *Ænas afer*, as a vesicant, the following advantages over cantharides: it is cheaper; it acts without appreciable pain; it is equally powerful; and it does not, so far as his experiments have yet shown, affect the genito-urinary system. If its non-inflammatory action can be established by further experiment, it is probable that the *Ænas afer* will be a valuable addition to the materia medica.

A CLOSE CALL.—Our associate, Prof. James Law, of Cornell University, Ithaca, N. Y., had a narrow escape from death on Thursday of last week. By mistake he took a six-grain dose of morphine in place of quinine, and administered the same deadly dose to his daughter, who was also ailing. As soon as the symptoms began to appear the facts flashed upon his mind, and by the aid of the telephone prompt assistance was summoned, and the two lives were saved. We congratulate the stock-breeding interests of America upon Dr. Law's escape from this peril. His death just now would have been a national calamity, as we have no man among us qualified by nature, education and habits of mind to take up the work which he now has in hand, and in which he has already done such signal service. May his days of usefulness be yet long in the land.—*The Breeders' Gazette*.

IMPORTANT CHANGE IN U. S. QUARANTINE REGULATIONS.—By a telegram from Mr. J. H. Sanders, member of the U. S. Treasury Cattle Commission, and editor of the *Gazette*, we are informed that the Government will modify its method of com-

puting the duration of quarantine to agree with that of Canada. This will be welcome news to the cattle importers of the United States, as it materially shortens the time of quarantine after debarkation, thus reducing the expense of importation. While a quarantine of ninety days has been enforced by both our own and the Dominion Government, the latter computes the time from the date the cattle were shipped from the foreign port, thus giving the shipper the benefit of the time *en route*; whereas our own Government has heretofore enforced the full ninety days after landing at a United States port. Hereafter the time will begin to run from the day of embarkation on the other side.—*The Breeders' Gazette*.

THE DISCOVERY OF THE BACILLI OF TUBERCLE.—It is difficult to estimate the value of Koch's demonstration of the truly parasitic nature of tuberculosis. This must be admitted a great advance in the field of pathological research, and will likely lead to the easy recognition of the necessary prophylaxis, if not the certain means of cure. About fifteen years ago, Salisbury, of Ohio, created quite a sensation by his publications in the *Philadelphia Medical and Surgical Reporter*, of the cryptogamic origin of several forms of disease. In 1879, he and Dr. Ephriam Cutter, of Boston, published an account of some ingeniously contrived experiments to prove the parasitic origin of pulmonary consumption, but it has remained for Koch to demonstrate the precise nature of the bacillum. Dr. Fred. Eklund, of Stockholm, published a year or two ago an interesting account of some cases of contagious phthisis pulmonalis, and it seems that he has been fully confirmed by the demonstrations of Koch, who has only to point out the infallible destroyer of the bacillum in order to eclipse Jenner's glorious achievement.—*The Medical Herald*.

SCARLET FEVER AND BUTCHERS' MEAT.—There seems to be some evidence that scarlet fever may be communicated through butchers' meat. Dr. Robertson, of Penrith, England, reports the following case: In a butcher's family there was an exceedingly mild case of scarlet fever, so mild that no medical man was called in, the disease, in fact, not being recognized; but the free des-

quamation of the skin, and the former history of slight fever with sore throat, leaves no doubt as to the nature of the illness. The occurrence of such a case in a small house, and where no precautions were taken, renders it an easy matter to spread the disease in the manner Dr. Robertson suggests. The number of cases in the neighborhood continued to increase, notwithstanding all the precautions that were used, in addition to the closure of the schools. The meat is the only means by which Dr. Robertson can imagine the disease was carried in several of the cases. In another village, a large number of cases of scarlet fever occurred, and the health-officer has strong reason for suspecting the butcher's meat as a medium by which the infection was spread. The circumstances here were almost identical with those of the first outbreak. The first case was at a butcher's house; it was a slight one, not recognizable by the parents at first; free desquamation took place, and the child was allowed to run all over the premises. —*Brit. Med. Jour.*

EXCHANGES, ETC., RECEIVED.

FOREIGN.—*Revue für Thierheilkunde und Thierzucht*, *Clinica Veterinaria*, *Veterinarian*, *Veterinary Journal*, *Gazette Medicale*, *Archives Veterinaires*, *Recueil de Medecine Veterinaire*, *Journal de Zootechnie*, *Revue d'Hygiene*.

HOME.—*American Farmer*, *Spirit of the Times*, *Turf, Field and Farm*, *American Agriculturist*, *Country Gentleman*, *Rural New Yorker*, *Ohio Farmer*, *Breeders' Gazette*, *National Live Stock Journal*, *Medical Record*.

NEWSPAPERS.—*Farm, Home and School*, *Farmers' Review*, *Home Farm*, *Western Medical Report*.

COMMUNICATIONS.—James F. Frink, E. Mink, C. B. Michener, H. T. Foote, W. H. Rose.

SECTION 3. Every person now engaged in the practice of veterinary medicine and surgery within the State shall, within sixty days after the passage of this Act, and every person hereafter duly authorized to practice shall, before commencing to practice, register in the clerk's office of the county where he is practicing or intends to practice veterinary medicine and surgery or any of its branches, in a book to be kept by said clerk, his name, age, residence and place of birth, together with his authority for so practicing. The person so registering shall subscribe and verify by oath or affirmation, before a person duly qualified to administer oaths under the laws of this State, an affidavit containing such facts, and whether such authority is by diploma or certificate or by the exemption provision of section 1 of this Act. If by diploma or certificate, the date of the same and by whom granted shall be stated. If by the exemption clause of section 1 of this Act, then he shall state the length of time he has practiced within the State and in what place or places; that he can read and write; and that he has in his possession some work or works recognized as authority, that he has read and studied, that treat on the anatomy and physiology of the horse, his diseases, their cause, symptoms and treatment, the action, uses and doses of medicines commonly used in the practice of veterinary medicine and surgery; that he has knowledge of arithmetic and of pharmacy sufficient to enable him to combine or compound, and to dispense drugs in a practical and intelligent manner and with ordinary safety: which, if wilfully false in any particular, shall subject the affiant to prosecution, conviction and the pain and penalties of perjury, and shall be enjoined from practice thereafter.

SECTION 4. Any person who shall practice veterinary medicine and surgery in any of its branches for fee or reward in this State, without having complied with the regulations of this Act, shall be deemed guilty of a misdemeanor, and upon conviction shall be fined not less than twenty dollars, nor more than one hundred dollars, or imprisonment for a period of not less than twenty days, nor more than sixty days for each offense. The fine, when collected, shall be paid the one half to the person or corporation

making the complaint, the other half into the county treasury of the county in which said fine is imposed.

SECTION 5. All acts or parts of acts inconsistent with this act are hereby repealed.

SECTION 6. This Act shall take effect in one month after its passage.

(From the *Baltimore American*, June 1st, 1882.)

“NO PLEURO-PNEUMONIA.

“In view of false reports circulating in some of the western papers, the Governor desires it to be known that there is not a single case of pleuro-pneumonia in the State. Dr. Lemay is at the call of the State authorities, and examines every suspicious case. He has reported to the Governor that for the last six months there has not been a case of this disease anywhere in this State.”

.DELPHEY'S HOTEL, BALTIMORE, Md., June 6th, 1882.

Editor American Veterinary Review :

It is with great reluctance that I forward to you such heroic decisions, signed by the veterinarian who has control of the State.

I am obliged to contradict this statement; not for the sake of notoriety! but for the welfare of our country. We have the disease in this State, and within the past *six weeks* I have found cases, principally in the farming districts.

Veterinarians who make a specialty of examining infected herds should watch with avidity the incipient stage of this disease. We all know it is very insidious in its character, for we cannot specify any time prior to its development. Regarding his examinations of suspicious cases: I claim that every head of cattle in an infected district should be so classed, so long as the State authorities will not quarantine a herd while the disease is spreading among them. Old infected stables are never entirely free from its ravages; it is true they may escape for a time, but I find it possible for one or more animals to assume the chronic form of the disease, while their lacteal secretions will sometimes remain unaltered; the temperature of the body, too, is often but slightly

elevated. Can we give such absolute decisions under these trying circumstances?

“Governor Hamilton has caused an investigation to be made by Dr. Lemay, the veterinary surgeon, into the complaints as to the unhealthiness of milk produced by cows fed with distillery swill, and the examination convinced him that there was not only no necessity for the approval of the Mill bill, but that it would be exceedingly improper to place a law on the statute book prescribing how cows shall be fed. Another objection to the bill is that it provides for additional office-holders, one with a salary of \$1,200 and traveling expenses, and two others with unlimited salaries.”

In conclusion, I am willing to extend every respect to the Governor of Maryland, providing he protects the owners of stock from experiencing the existence of this destructive malady among their herds of valuable neat cattle. Having visited most of these fine stock farms, I can announce that the State of Maryland is advancing with rapidity to a par with other States in producing valuable cattle. Therefore, I say, protect them.

With many thanks for past favors, I remain,

Yours, very respectfully,

W. H. ROSE, U. S. Cattle Inspector.

CELLULITIC FEVER—PINK-EYE.

To Editor Veterinary Review:

I have noticed some controversy in the REVIEW in regard to the disease commonly called pink-eye. One veterinarian contends that epizootic cellulitis is the proper name for this disease; others deny this, and insist upon calling it “influenza.” I think it would be well for veterinarians to discard entirely the name influenza for any disease.

Da Costa, in his medical diagnosis, classes catarrhal fevers with continued fevers, and remarks concerning it that “it is not common to class this epidemic malady with the idiopathic fevers. It is often described as a mere variety of bronchitis, because inflammation of the bronchial mucous membrane constitutes one of its most prominent symptoms. But this is not a just view. With as much propriety might typhoid fever be omitted from the list

of febrile maladies, and described as a variety of enteritis or diarrhoea."

When it is discovered by an attending veterinarian that an animal is the subject of fever, it is his duty to ascertain whether it is idiopathic or symptomatic. Whether, as Da Costa puts it, "it is a complement to a disease, or as far as can be ascertained, the disease itself." Further on he says in reference to continued fevers that, "it is now well understood that with few exceptions they are characterized by the want of definite and invariable anatomical lesions. That in all constant changes occur in the blood, or in parts of the nervous system, is highly probable, but these changes are not of a nature to be recognized by our present means of research. Certainly there is no invariable injury perceptible in the organs of the body; sometimes one, sometimes another suffers; sometimes nearly all; at times none. When we contrast this with symptomatic fever, the difference is striking. The visceral lesions, then, of an idiopathic fever are not the starting point of the fever; but rather secondary and uncertain complications, influenced by and subordinate to the profound disturbance of the whole system. In idiopathic fever the fever controls the lesion; in symptomatic fever the lesion controls the fever."

Now, starting with these conceded points as a guide, when I find an epizootic influence prevailing, and find a patient suffering distinctive catarrhal symptoms, with other symptoms common to continued fevers, I can readily decide it to be a case of catarrhal fever, or what is called influenza.

On the contrary, when I find an equine idiopathic fever prevailing, in which catarrhal symptoms are conspicuously absent, as in the so-called pink-eye, then I find much difficulty in deciding it to be a catarrhal fever. In the disease known as pink-eye, so far as I am able to discern, the most conspicuous seat of lesion is the connective or cellular tissue. Catarrhal symptoms, as a rule, are absent, and I am therefore inclined to think that cellulitic fever is a more appropriate name than influenza, which by long usage and common consent represents catarrhal fever. Neither do I think "epizootic cellulitis" a proper name for the disease. This would imply that the fever is merely symptomatic, and not

idiopathic, and that the lesion caused the fever and not the fever the lesion. So cerebro-spinal meningitis implies a local disease, and that the resulting fever is caused by it; whereas, cerebro-spinal fever implies that fever is the disease itself, and the lesions that follow are caused by it.

It is a fever we are naming and not an inflammation. And so I might go on with instances, but these will be sufficient to indicate the rule I would adopt by which to name fevers.

Some will ask how extensive should the lesion be in a fever to attach importance enough to it to name it after the organ or tissue affected. To this I answer, so far as I am aware, it is not held by medical authors that it should be extensive enough to constitute an inflammatory condition, but that the lesion may consist of merely a morbid change in the functions of organs or tissues, providing it is conspicuous over all others affected.

In a great majority of cases of pink-eye true cellulitis does not exist, but derangement of cellular tissues does exist in nearly all cases; enough so to mark it the most conspicuous seat of lesion. Those mild cases that present no distinctive seat of lesion ought, perhaps, to be called simple continued fever, while the former may appropriately be called cellulitic fever.

Of course the thought will be suggested to many that a marked derangement of cellular tissue frequently exists in catarrhal fever, as indicated by edematous limbs, etc. This is admitted, and I admit further that catarrhal fever and cellulitic fever resemble each other in more respects than in edema of the limbs. Each has other symptoms common to continued fevers. But difference is marked in the following: First, in cellulitic fever there is, as a rule, the absence of catarrhal disorder. In cellulitic fever pleurisy or pleurodynia and articular complications are quite apt to occur. Catarrhal fever is seldom attended with either of them. If pneumonia occurs during cellulitic fever, it is exudative and not catarrhal pneumonia. In cellulitic fever iritis often occurs. In catarrhal fever I have never observed it.

In cellulitic fever there is frequently œdema of the eyelids, but seldom any evidence of conjunctival disorder, though in catarrhal fever there is sometimes catarrhal ophthalmia. Cellulitic fever is attended or followed by articular derangement or

lameness. Catarrhal fever seldom entails these as sequels.

Finally we are told, and at present have no reason to doubt, that in cellulitic fever there exists the so-called fibrinous crasis of the blood. Hence the pleuritic and rheumatic complications, embolism and thrombosis. In catarrhal fever the opposite condition of the blood is known to exist; a depraved and impoverished condition of the blood, and in many cases disintegration of its elements; hence, purpura hemorrhagica as a sequel.

I have never known this last named disorder to follow cellulitic fever.

The epizootic of 1875 was a distinctively catarrhal fever, and I saw no cases of pleurisy or pleurodynia during its continuance.

The epizootic of 1875 might, I think, appropriately be called a protean fever, as I saw many cases that were clearly catarrhal, attended by violent fits of coughing, nasal discharge, &c. In others there were no catarrhal symptoms, and in these cases pleurisy or pleurodynia existed.

The so-called pink-eye that now and for two months has quite extensively existed in this city, is a fever in which catarrhal symptoms are universally absent, but a fever in which the distinctive characteristics are derangement and disorder of the cellular tissue, hence the appropriateness of cellulitic fever.

Rochester, N. Y., June 9, 1882.

E. MINK.

SOCIETY MEETINGS.

NEW YORK STATE VETERINARY SOCIETY.

The regular monthly meeting of this Society was held at the American Veterinary College, on Tuesday, June 13th, at eight o'clock, p.m., with the President, Dr. Liautard, in the chair.

Drs. Liautard, Burden, Coates, Field, Cattanaeh, Foote, Cochran, Michener, Crane, Bunker, Devoe and Robertson responded to the roll-call.

Dr. Bunker reported an interesting case, in which a mare, after an attack of spinal meningitis, passed through the urethra the mucous membrane of the bladder, the membrane being studded with small calcareous deposits. Dr. Liautard reported a similar case in a gelding, and a second in a mare, which had come under

his care. Questions arose as to the cause of this pathological lesion and the origin of the calcareous deposits, but neither were satisfactorily answered. It was decided to submit the specimens to an analysis and microscopic examination.

Dr. Robertson read an interesting paper on leucocythemia. After discussion of the same, a vote of thanks was tendered the essayist.

The revision of the report of the Committee on Constitution and By-Laws was next completed, after which the Constitution and By-Laws were adopted as a whole.

The reports of various other committees were then accepted.

The names of John Leighton, D.V.S., and William Manz, D. V.S., were presented to the Society, and referred to the Examining Committee.

A motion to have the Constitution and By-Laws printed was carried.

Dr. C. B. Michener was appointed to read a paper at the next meeting. The Society then adjourned.

H. T. FOOTE, M.D., V.S., *Secretary*.

REVIEW.

The fifth edition of Prof. James Law's *Veterinary Adviser* is already issued, which shows how thoroughly this work is appreciated.

We have had occasion before to express our approval of this book, and it only remains now for us to further commend it to all veterinarians and owners of stock. The insertion in this edition of "The Lung Plague of Cattle," is a valuable addition, and is alone worth the price of the book.

MUSEUMS AS EDUCATIONAL ADJUNCTS TO MEDICAL COLLEGES.

BY M. JOSIAH ROBERTS.

(Continued from page 141.)

III.—*What should a medical museum contain?*

From the fact that most medical colleges have only a moderate amount of room to devote to museum purposes, and that a museum should partake of none of the characteristics of an "amorphous receptacle of curiosities and conceits," it

is evident that space should be given only to those objects that are essential for the instruction of medical students and the advancement of medical science. The answer, therefore, to this question is largely dependent upon the breadth and scope of the instruction, especially with reference to the amount of comparative anatomy that it is considered necessary or at least desirable for a medical student to have.

A masterly résumé of the whole question as to how much *comparative anatomical* knowledge would be desirable for a medical student to possess has recently been given by Prof. Burt G. Wilder, of Cornell University, in an introductory lecture at the Medical School of Maine. (7.) Prof. Wilder is in a position to speak upon this subject intelligently and impartially, being Professor of Physiology in two medical schools,* and Professor of Comparative Anatomy and Zoology in Cornell University. As the answering of the question under consideration largely depends upon the amount of comparative anatomical knowledge which the medical student should have, I can do no better than to give somewhat fully his answer to the question, "To what extent should the study of comparative anatomy be pursued by the medical student?" He answers: "The student should have a good general knowledge of the animal kingdom, including the names and leading characteristics, external and internal, of the great primary branches."†

* The Medical Department of the University of Michigan, and Medical School of Maine.

† "Neither the radiates (star-fishes and sea-urchins), nor the mollusks and molluscoids (clams, snails and cuttle-fishes) need long occupy his attention. The same is to be said of the crustacea (crabs and lobsters) and worms, though certain kinds of worms have a practical importance. He should know the difference between the spider and the true insects, and what kinds are liable to injure by jaws or sting.

"But among the vertebrates his knowledge should be much more extensive. He should know that a salamander and a lizard are members of two separate classes, the amphibia and reptiles; and that among the so-called "fishes" are forms differing from one another as widely as do turtles from birds. He should know that a bat is not a bird, not only from having hair in the place of feathers, but also because the young are nourished with milk; it has two occipital condyles; its brain possesses a *pons varolii*, a *fornix* and a *corpus callosum*; and its red corpuscles are round and non-nucleated. But he should also know that in one group of mammals, the camels and llamas, the red corpuscles are oval, as in birds and reptiles.

"But while the student should learn, at any rate from lectures, the names and distinguishing features of the vertebrate classes, so as to appreciate the bearing of any generalization that may be presented to him, and while he would certainly be profited by the dissection of a lamprey, a shark, a sturgeon and a perch, as types of certain groups, as he would by the examination of a reptile or a bird, yet he should bear in mind that these are of a scientific rather than practical value. He should confine himself mainly to such forms and such organs as may facilitate the study of human anatomy and physiology in respect to convenience, intelligibility or economy of time or expense; and with these forms his acquaintance can hardly be too practical or extensive. * * * * *

"He should certainly know very thoroughly the structure and transformations of the *trichina* and tape-worm, to the extent—for instance, described and figured in Dalton's "Physiology."

"So, too, he should know the names and habits of venomous insects and serpents, and be aware that the bite of the jumping spider (*Salticus*) is more apt to do harm than that of its less vigorous relative, the garden-spider (*Epeira*); also that the so-called water-adder of the Middle States has no poison fangs or glands, and that its bite is therefore not apt to cause serious injury."

With reference to the doctrine of evolution, he remarks: "Certainly this is a very fascinating subject, and of great scientific interest. But, for practical purposes, is it not enough that the student be told that many muscles, vessels and nerves are liable to variation, and that some of these variations closely resemble the normal condition of the parts in monkeys and other animals." (See also a paper in N. Y. Med. J. for Oct. or Nov., 1879. The Anatomical Use of the Cat.)

AMERICAN VETERINARY REVIEW,

AUGUST AND SEPTEMBER, 1882.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

BY A. ZUNDEL.

(Continued from page 156.)

DISEASES OF THE FROG.

This part of the horse's foot is exposed to many pathological lesions. Some are merely accidental, and result from the introduction into its structure of nails, and other various foreign bodies, more or less sharp, which the animal picks up in walking or performing his work. We have already considered these forms of lesion in the article upon Punctured Wounds. The frog is often bruised, a lesion which may be followed by a complication which we may be allowed to consider under the name of furuncle of the frog. But besides this, some special diseases are also observed, amongst them one already known to us under the name of *canker*, and another which is more commonly known under that of *thrushes*.

(A) **THRUSHES.**—This affection is often, but wrongly, considered as the beginning of canker, being characterized by the presence of a puriform secretion, blackened and very foetid, which collects and accumulates in the lacunæ and excavations of the frog, whether in its middle or upon its sides. There is often an increased sensibility of the parts, which in some cases may give

rise to very serious lameness, preventing the animal from standing, and rendering the movement of walking very painful. The horn of the frog often becomes soft and thready, when the frog is called *rotten*, and the softness increases until it drops off by piecemeal.

The causes of this affection are, first, excessive work on stony roads; changes from excessive dryness to moisture; the strong muds of streets, and standing in damp and dirty places, especially in urine and manure, as is often the case in badly kept stables. But there are horses whose feet are also affected with thrushes even when standing on a dry bedding; those whose feet are contracted; and again, well-bred horses with good frogs, and in which there is a constitutional tendency to that condition of the horny structures.

The treatment consists in avoiding all known causes likely to give rise to this morbid condition of the frog. Sometimes the foot must be pared, and all the parts where the puriform secretion collects exposed and thoroughly cleansed. The lacunæ of the frog are then to be dressed with Villate's solution, Ægyptiacum ointment, and sometimes only with simple drying powders, a mixture of subacetate of copper, burnt alum and tannin. When the pain is excessive, glycerine, with a little Goulard's extract or per-chloride of iron, is very beneficial. In some cases again, excellent results are obtained by poulticing. It is certain that proper shoeing must, in many instances, be of great advantage.

(B) *FURUNCLE OF THE FROG*.—Under this name is understood the partial necrosis of that portion of the plantar cushion which is situated above the frog proper, from a bruise of that part of the hoof. Loiset describes it under the name of *plantar fibro-chondritis*, connecting it with quittor, which he named *lateral fibro-chondritis*.

(I) *Symptoms*.—There is nearly always, and especially at the outset, a severe lameness, the greater in degree as the mortification is more extended and more deeply situated. While standing, the affected leg is carried forward, resting on the toe; the heels are raised, and the fetlock is half flexed. In action, the rest is very slight, sometimes quite absent, and occurs on the toe only.

As the disease progresses, and the necrosed spot develops itself, the animal rests his foot better, and the lameness diminishes.

Upon examination of the foot early in the history of the case, a small opening may ordinarily be discovered, either on the body of the frog or in its branches, while at other times there is merely a discharge of a yellowish serous pus of a strong odor, and more abundant in quantity than would be expected from the size of the wound, while surrounding it the hoof is loose and sometimes ready to drop off. If the disease is several days old a mass of dead tissues is ordinarily found partly loose, projecting through the opening of the frog, which has the aspect of a whitish body, slightly green, soft, loose and detached amongst the surrounding tissues.

When this core (*bourbillon*) is not visible it may sometimes be felt with the finger introduced through the wound in the frog.

If there is no lesion of the frog the purulent fluid accumulates under the hoof, raising and loosening it from the velvety tissues to a varying extent. Fluctuations may be sometimes even felt under the hoof. Sometimes the pus oozes through the lacunæ of the frog, while again it may then appear at the heels, after making its way under the entire sole.

(II) *Pathological Anatomy*.—As we said at the beginning, the characteristic lesion of the frog is the gangrene of a portion of the fibrous structure of the plantar cushion, when it changes its general appearance and becomes of livid yellow-greenish color, while at the same time a process of elimination takes place in the surrounding parts, and pus forms, separating the dead tissues from the healthy structure surrounding. This process of elimination is more active on the surface than in the deeper parts of the plantar cushion, to which very often this core remains attached. In some serious cases the disease becomes complicated with necrosis of the plantar aponeurosis, or of the *os pedis*, and sometimes of caries of the lateral cartilages, or cartilaginous quittor.

(III.) *Causes*.—Furuncle of the frog always proceeds from

some violent injury through the horny envelope of the tissues it covers, either when the hoof has been cut through and through by a sharp instrument, or as the result of some simple bruise without solution of continuity, contusion, or even crushing. Any foreign body likely to produce a punctured wound of the foot may produce it. But in such cases as are accompanied by furuncle it is necessary that the wound should be more of a contused or bruised than of the punctured variety. Rough, angular stones are the most common agents of injury, being often picked up between the shoe and the frog, and then, pressing more or less upon the tissues underneath, they produce the same result when they are located in the laminae of the frog.

A thick, voluminous frog in a foot with low heels is very much exposed to the class of injuries under discussion, equally with the frog whose horny covering has been pared too closely.

(IV.) *Treatment*.—The first indication, says H. Bouley, when one has to treat a furuncle of the frog, is to thin down as much as possible the horn of the plantar region, and especially that of the frog, of the bars and the branches of the sole, in order to avoid the painful pressure it would produce if its thickness should interfere with the expansion of the parts. This done, if the frog is already punctured, and there is an opening communicating with the cavity where the core (or *bourbillon*) exists, a free incision or opening must be made through the hoof and the fibrous covering of the plantar cushion, and thus the escape of the pus facilitated. If the horny frog has remained intact, a longitudinal incision must also be made in order to allow the frog to discharge, and avoid further burrowing or undermining of the hoof. It is bad practice to attempt to pull the *core* out with a sharp instrument. It is better to leave it undisturbed and wait for the natural process of elimination, which may, however, be hastened by the application of a poultice. The time required for the entire separation of the necrosed spot varies, and as it approaches, the animal begins to improve in the matter of resting his foot. When it becomes entirely detached, the cavity which it occupied in the plantar cushion is treated as a simple wound, with turpentine or tincture of aloes. However, a dressing supported by the shoe with plates is always

advantageous, and must be frequently repeated. No great length of time is usually required for the entire healing of the parts, and the animal is soon returned to his work.

In a few cases, nevertheless, the furuncle becomes complicated with necrosis of the plantar cushion, disease of the os pedis, or of the lateral cartilages, the treatment of which must vary according to the nature and severity of the lesions. In these instances operations similar to those required in cases of deep punctured wounds of the foot or in cartilaginous quittor are indicated.

KERAPHYLLOCELE.

This name was given by Vatel to a tumor which forms on the internal surface of the wall of the horse's foot, at the expense of the keraphyllous tissue, which becomes hypertrophied. These tumors are sometimes irregularly rounded, at others elongated, but usually rounded and again flattened from side to side. They vary in size from that of a goose quill to that of the finger, and while in some cases they occupy the whole length of the wall from the coronary band to the plantar border, in others they only begin at one-third or one-half of the height of the wall. The difference in size allows a division of keraphyllocele into complete and incomplete. At different points the columns are roughened by frequent enlargements. Sometimes full and formed by a very compact and hard tissue, they are, however, sometimes of a fistulous character and accompanied by a blackish discharge of an offensive odor. The lamellæ of the reticular tissue which are nearest to them are generally wider and thicker than in the normal state. As the tumor increases it compresses the lamellated tissue and the corresponding surface of the os pedis, injuring the soft parts, and resting in a groove they thus form for their development.

The causes which give rise to their development are more especially cracks of the walls; though they often follow laminitis or supervene upon severe operations on the wall. Vatel claims to have observed them after injuries to the hoof resulting from the hammering of the foot while being shod.

The symptoms are very obscure. At first the animal is but

slightly sore in traveling, but the lameness increases as the tumor enlarges in size. The region surrounding the tumor is always warmer and more sensitive than is natural. In many horses the coronet presents a swelling, well marked. In some cases the diseased quarter is depressed, and the toe seems elongated. When a toe or quarter crack is accompanied with severe lameness kera-phylllocele may generally be suspected. But when none of these external signs exist it is exceedingly difficult to make a positive diagnosis of their presence: for though the swelling of the coronet, the heat and the pain of the hoof may be present, those symptoms may belong also to other diseases of the foot. Then the only means at our disposal is to pare the foot well down, when, at the surface of the sole, the extremity of a portion of hoof ordinarily harder than the normal consistency may be detected.

The treatment consists in removing the portion of the hoof corresponding to the horny tumor, as in a case of cracks, and treating the wound thus made in the same manner, according to the indications presented.

(To be continued.)

ANTHRAX IN NATAL.

BY S. WILTSHIRE, *Colonial Veterinary Surgeon.*

(REPORT TO THE COLONIAL SECRETARY.)

To the Honorable the Colonial Secretary:

SIR.—I have the honor to forward for the information of his Excellency the Governor, a report on the different forms of anthrax—or charbon—with which I am at present acquainted in this colony, showing the causes of this affection, and giving an outline of the treatment and the means of prevention which are calculated to be of most value.

Anthrax is one of the oldest diseases known, as well as one of the most virulent. It derives its name from the formation of a pustule or carbuncle in certain cases and under certain conditions. In most cases in this country no pustule is developed, but other lesions characteristic of the disease are, by which it is easily iden-

tified. Frequent mention is made of it in classical writings, and by some it is supposed to be identical with at least one of the plagues with which the Egyptian cattle were smitten during the negotiations with Pharaoh. The history of the last two thousand years abounds in instances of the terrible losses sustained through its ravages, more particularly about the 13th century.

No portion of the globe appears to be exempt from it in one or more of its manifold forms, though warm countries, and those where there is much marshy land, or the soil is tenacious of moisture, are most subject to its ravages. Great Britain and Ireland were scourged by it in former times, but drainage and cultivation have greatly lessened it.

All animals are liable to become affected with this disease. Birds and fishes, too, are said to be subject to it under certain conditions.

It is in herbivorous animals, however, that it appears to have a predisposition to develop chiefly—the reasons for which will appear hereafter—though others are equally susceptible when placed under suitable conditions for the reception of the poison.

Whether the disease is manifested by the formation of a pustule or not, there are certain characteristics by which it is recognized, such as special alterations in the blood, which has a tendency to exude through the vessels, a very dark color, the formation of a feeble clot, a peculiar smell, and the presence in it of certain organisms termed “bacteria,” the germs of the disease. Tumors in the spleen, or a discolored and disorganized state of this organ, are constant symptoms—well marked in meltsickness and redwater—so, also, is the sudden development of tumors leading on to abscesses or gangrene, as in sponziekte (or sponsickness), and in certain forms I have seen in both horses and cattle in this country.

Before entering into a description of the pathological conditions that characterize this disease, I would direct attention to the fact that other diseases besides this are due to germs—glanders and lung sickness, for instance—so that in defining or referring to different forms of it, I would add a caution that it must not be imagined that every disease met with in this country is a form of anthrax, even though it may be due to similar causes.

As I said before, anthrax manifests itself in different forms, and in South Africa those most generally known are—horsesickness, meltsickness, redwater, sponsickness, and certain cases amongst bucks and other game which I have not seen, but which have proved their nature by infecting human beings who have handled the carcasses. Besides these, however, there is the fever which prevails amongst horses, especially of late years, and which I have seen in cattle also. Gloss-anthrax (or carbuncle of the tongue) prevailed also at one time, and I have a strong impression that many of the cases called “gallsickness” and “bushsickness,” are really modifications of this disease.

Amongst sheep and goats I have not recognized it so far, although I feel certain that it exists, and may be credited with a share of the losses suffered annually.

SYMPTOMS.

Anthrax Fever.—Under this head I propose describing the general symptoms of this affection in the horse, as this form is the most commonly met with both in the mild and acute form. At any time of the year a case of fever of this kind may be met with, often of so mild a character as to be difficult to recognize; at other times so acute as to be apoplectic, death being either very sudden, or in a very few hours after the commencement of the attack.

In ordinary cases the first thing noticed is that the horse is somewhat duller than usual, and perhaps does not feed; his eyes look dull and heavy, and very frequently tears are seen trickling down the face. On turning up the eyelids, they are noticed of a reddish-yellow color, and little dark spots are seen, which often get larger, and in bad cases often give a deep claret color to the whole conjunctival membrane.

In many cases the limbs and sheath are swollen, sometimes extending along the belly to the forelegs. In some instances, one or more of the limbs swell up to an enormous size, the swelling terminating at the top very abruptly, as though something had been secured round the leg to prevent it extending. Most animals are somewhat drowsy; but some have urgent symptoms, indica-

ting that the brain is affected. This arises from two causes, which may act independently, but almost invariably act together—that is, the impure condition of the blood acting upon the brain and nervous system, and the disordered state of the stomach and bowels, which, combined, give rise either to “mad-staggers,” or to that half-insensible and weak, staggering condition so frequently seen.

In many cases there are symptoms of colic, shown by the uneasiness, pawing, lying down and looking back at the flanks. As a rule, the pulse is quick, the mouth and skin hot, and the latter sometimes harsh and dry. Sometimes the urine passed is very scanty, at others, copious. Again, it varies in appearance and consistency; at one time scarcely changed, at another high-colored only, then more like beer, and sometimes quite bloody.

The state of the bowels varies considerably. In 1879 diarrhœa was usually present, but ordinarily it is not, and in most instances there is a tendency to constipation. I have often seen a remarkably relaxed condition of the anus, and noticed that the lining membrane of the rectum was of a deep mulberry color.

As results of this disease, I have frequently had to contend with laminitis (fever in the feet), and on several occasions with mild attacks of lockjaw, paralysis of the lips, abscesses, or some other complications due to functional derangements and the impure state of the blood; and, lastly, with the development of symptoms identifying it with “horsesickness.”

I have entered into a fuller description of the symptoms and post mortem appearances of this form than of the others, partly because it has not been brought to public notice before, and also because horsesickness has been described by myself and others in previous reports, and is more familiar to the public.

Horse-sickness.—Many of the symptoms already described belong to this form also, and it has been noted by myself and others—specially Inspecting Veterinary Surgeon Duck, of the Army Veterinary Department—that the fever described above has developed into well-marked cases of horse-sickness.

Besides these, however, we have the quick, distressed breathing, indicative of inflammation of the lungs, and the discharge of

yellow, frothy mucous from the nostrils at times, as special characteristics.

In the “dikkop” and “black-tongue” modifications of horse-sickness, we have the swollen head, lips, and tongue as well—hence the origin of these terms.

Lastly, we occasionally meet with cases that, from the suddenly fatal results, can only be considered apoplectic—which, from the absence of the ordinary, or most conspicuous lesions, and from special characteristics, only the well-informed and careful observer can distinguish.

Redwater.—This is the form of anthrax that chiefly prevails—amongst cattle—in Natal, and, consequently, is better known to the public than the rarer forms.

In this affection the symptoms noticed are dullness, loss of appetite, dry muzzle, redness of the eyes, quickened breathing, weakness in the hind-quarters, twitching of the muscles, in some cases diarrhœa, in others constipation, with the fœces tinged with bloody mucous; urine high-colored, and in some instances almost black. The brain is often affected, and many animals in an advanced stage of the disease will charge anyone that approaches them. The temperature is invariably high, and cough is by no means uncommon.

Of course, in milch cows the milk ceases to be secreted at an early stage of all forms of this disease.

Melt-sickness (splenic apoplexy).—This form is very like the acute cases of redwater, the difference, if any, being in the suddenness of the attack and its result.

There is the same loss of appetite and great prostration, weakness in the hinder parts, shivering, and either stupor or great excitement. The ears and legs become cold, tongue discolored; there is grinding of the teeth, foaming at the mouth, diarrhœa, with abdominal pain, and finally, convulsions and death.

Sponziekte (Quarter-evil).—This usually occurs in young animals, especially those in the most thriving condition.

At first the animal looks dull and disinclined to move about, has no appetite and does not chew the cud, is stiff in the limbs, and lies down; the mouth is hot, skin tender and the eyes red-

dened. After a time enlargements form about the neck, brisket, one of the limbs (causing lameness), or on some other part of the body; the bowels are constipated, and the urine is high-colored.

At first the swellings are very tender when touched, but afterwards become insensible and cold, and after a few hours crepitate when handled; the depression increases, in some cases there are convulsions, and in a few hours the animal dies in an insensible state.

Gloss-anthrax (carbuncle of the tongue).—Although I have never seen this form in Natal myself, I think it proper to direct attention to it, as several colonists have described an affection of the mouth of cattle, which leaves no doubt in my mind as to its nature. In former times it was very common in England, but is now rarely seen.

It is characterized by the eruption of vesicles (or blisters) on gums, lips, the tongue and cheek, which ultimately becomes of a blackish color, and increase to the size of a half-crown; the tongue becomes of a bluish-black color, much swollen, and hangs from the mouth; the vesicles rupture, leaving ragged, black-edged ulcers, which eat into the parts involved; a stringy, acrid mucous, mixed with blood, issues from the mouth; the swelling extends from the cheeks and tongue to the throat, and may cause death from suffocation, if not from the disease itself. Fever, of course, is present in all cases.

POST MORTEM APPEARANCES.

There are certain well-marked characteristics of this disease, which can be distinguished by a careful observer, even though the symptoms during life do not enable him to determine its real nature.

One of the most constant and prominent is the tendency to rapid decomposition, with the accompanying distension of the body with gas; the rectum is frequently everted and of a deep red color, and foetid discharges from the natural openings are very common. The blood is of a very dark color, does not coagulate, or if so, the clot is not firm, and it has a peculiar sickening smell; it is usual to find bloody tumors in certain parts of the

body or flesh, or other tissues are deeply stained, hence the dark patches seen. The spleen is almost invariably altered; there is also the exudation of yellow gelatinous matter in various parts—particularly noticeable in horse-sickness. Lastly, there is the presence in the blood and other fluids of “bacteria,” the specific germs of this disease in whatever form it may manifest itself.

Anthrax Fever.—There is the usual distension of the body with gas and escape of bloody fluid from the external openings; the flesh is dark in color, and when cut into black fluid blood issues. The external appearance of the stomach and intestines varies considerably. In some instances there are no special alterations, in others they are dark in color; but I have often seen them spotted all over, as though sprinkled with large drops of blood; in some cases yellow gelatinous matter is effused all along the course of the intestines.

It is on their internal surface, however, that the most constant symptoms appear, as the mucous membrane is invariably found of a deep-red color, as if intensely congested—in fact, during life, owing to the relaxed condition of the anus, it is not uncommon to see the membrane of a deep claret color—it seemed thickened, and the surface is covered with a jelly-like mucons. The spleen is usually of a livid color, but varies a good deal in size and appearance, as does the liver; the kidneys, too, are dark in color.

The lungs are often found congested, and frequently the appearances are so much like horse-sickness that it is difficult to tell the one form from the other. The heart is invariably flabby, and the internal surfaces covered with dark patches.

It will thus be seen that the blood is materially altered, both chemically and physically, there being a diminution of fibrine, which prevents its clotting, while the cells become disintegrated and lose their contents, giving rise to the brown color of the serum, which in its turn passes readily through the membranes and stains them.

Horse-sickness.—Soon after death the body becomes distended with gas, and frothy mucous escapes from the nostrils; on cutting into the abdomen the intestines are found discolored, and oftentimes the mesenteric glands also; the spleen, too, is dark in color

and frequently enlarged. In the chest the lungs are found gorged with blood, and heavier than usual, with yellow gelatinous material deposited underneath the membrane covering them ; the bronchial tubes are full of frothy mucous, and in the cavity of the chest and in the pericardium (heart sac) there is a quantity of straw-colored serum ; the lining membrane of the heart is discolored.

Redwater (Charbonus Fever).—Besides the usual distension of the body, gas is often found amongst the tissues underneath the skin, along with yellow-colored serum ; the intestines are dark in color and much congested, with the glands enlarged. The fourth stomach and small intestines I have almost invariably found ulcerated, and the lining membrane covered with mucous tinged with blood, and in a few instances croupous casts have been seen. Bloody tumors are sometimes found in the omenta and round the kidneys, the latter being often dark in color, enlarged, and altered in texture ; the liver is nearly always increased in size, and sometimes softened ; the spleen is invariably affected, and, as a rule, much enlarged, dark in color, and thoroughly disorganized ; the bladder usually contains high-colored, albuminous urine, which deposits a sediment consisting of mucous corpuscles, etc.

The membranes covering the brain are much injected in some cases, and in the heart the lining membrane is always deeply stained. The blood seldom coagulates, or if so, only feebly, and “bacteria” are always found in it.

NOTE.—For more detailed particulars of “redwater” and “horse sickness,” *vide* my reports on these affections, published in the “Natal Almanac” for 1878 and 1879, respectively.

Melt-sickness.—Early and rapid decomposition, with distention of the abdomen and tissues beneath the skin with gas ; bloody serum in the abdominal cavity ; spleen discolored, enlarged, and sometimes ruptured ; a congested and discolored state of the lining membranes of the stomachs and intestines, chest, pericardium and the membranes covering the brain ; the bladder is sometimes found to have blood stains on its outer part, and it usually contains high-colored urine.

In some instances blood is found oozing out of the skin both

before and after death; but this occurs also in other cases, and is not a peculiarity of melt-sickness.

Sponziekte and Gloss-anthrax.—The appearances already described are essentially the same in these two forms. There is the early and rapid putrefaction, exudation of blood in large patches—particularly in the former—congestion of the lungs, with frothy mucons in the bronchial tubes; stains in the mucous and serous membranes; heart soft, and filled with black fluid blood; and lastly, tumefaction and sloughing, with more or less gangrene of the parts particularly affected in each form.

CAUSES

The causes assigned for the origin of diseases of this nature have been many. In early ages they were attributed to the anger of the gods, or the vengeance of the Deity for supposed offences against divine laws and ordinances; the acts of devils and evil spirits, witchcraft, comets and other natural phenomena, the laws of which were neither understood nor inquired into.

Long ago the influence of the weather and locality were noted; a hot and moist state of the atmosphere, and low-lying lands were the conditions found most favorable for the development of the disease. As science advanced, and the microscope was brought in to aid the researches of observers, the influence of the pastures and forage affected with parasitic organisms was recognized. Their minuteness, however, and the difficulty of determining the exact agents, and their modes of introduction into the animal economy, left the whole matter in a state of doubt and speculation.

Up to a very recent period it was taught that these diseases, or rather one of them—*Sponziekte*—arose from too rich a diet, by which means the blood was so charged with nutritive matter that the digestive functions became impaired, and a septic (or putrefactive) action set up in that fluid. It is now known, however, that these changes are entirely due to the presence in the blood of a parasitic organism termed “*bacillus anthracis*,” which, acting upon the organic constituents of the blood, impairs and destroys its vitality. These parasites are either minute “rods

or filaments," or "spheriod bodies," which are found in the blood of animals which have died of anthrax. They break up or resolve themselves into roundish bodies termed "spores," which retain their vitality for long periods outside the body, but are rapidly and indefinitely multiplied while in the system. When an animal dies and the blood is spilled upon the ground, they—the spores—either sink into it and remain there, or become washed away or removed to other places by the rain or other natural causes; thus we can account for the prevalence of this disease in low-lying places. When animals are buried, the earth-worms bring up the germs in their casts, and as they cling to the roots and stems of the grass and other plants, they are taken into the system in that way, which accounts for outbreaks in places that have been grazed over for years without disease of any kind being known, and when no danger was suspected.

Dry and cold weather seems to have great influence in preventing the effects of the parasites. Hence we see less of these diseases in our winter when it is cold and dry; and they are generally worse in very wet summers, when the conditions are most favorable for maintaining the vitality of the germs, and they are more readily introduced into the system through the medium of the grass. There can be no doubt that multitudes of these germs are destroyed by natural agencies, and that our grass fires have this one redeeming point in aiding in their destruction whenever brought under their power. These organisms do not pass through the foetal membranes (the membranes of the womb), consequently the young animals which have died of anthrax are equally susceptible to it. It is thus seen that the germs of this and allied diseases are solid particles, and it has been demonstrated that they can be cultivated like other organisms.

The way in which these parasites are distributed and conveyed into the systems of animals has been determined by the able researches of Professor Pasteur, who has not only satisfactorily proved that they are the sole cause of these diseases, but has succeeded in modifying their virulence so as to be able to produce anthrax in a mild form, thus conferring immunity on animals exposed to contagion. In these researches, however, he has not been the only worker, as other French, English and German

medical men and veterinarians have contributed very valuable information on the subject.

In England, the investigations of Dr. Greenfield, at the Brown Institution, have been of special value, particularly to us, in the case of our horse-sickness, which he produced in mice by inoculating them with material supplied from here during the Zulu war, and in which he proved that my observations as to the presence of bacteria in the blood were correct, as he succeeded in cultivating the organism to several generations, showing it to be a true "bacillus." Within the last few months he has further succeeded in producing in cattle a modified form of anthrax, which rendered them proof against the disease (melt-sickness in this case) when exposed to it at a place where it had broken out on a farm, contaminated by the water from a wool-sorting establishment, where several cases of "malignant pustule" had occurred amongst the men employed there. The immunity of these animals was further confirmed by direct inoculation.

While referring to the causes—known and supposed—giving rise to these diseases, it is only right to refer to the opinion that prevails throughout South Africa as to the origin of horse-sickness, viz., "that it is due to miasma," or "that it is contained in the dew."

Many South African farmers assert that, if horses are not turned out till the dew is off the grass, and are brought in before sunset, they will escape. Another very successful horse breeder says, "that by keeping his horses in till sunset, and bringing them in again before sunrise, he has not lost a horse for years." I leave it to others to reconcile these theories, and merely add that the fallacy of the first is proved by actual experience. Mr. Lambert, in his report on this subject last year, upheld this malarial theory by asserting that "when watery vapor rises by evaporation, they—the germs—are entangled in it and float in it." On this and some other points, however, I differ from him, as I am of opinion that solid particles as these germs are, when wetted, more likely to sink than rise. The influence of a wet summer in the production of horse-sickness is, I believe, generally recognized, but I think it will be admitted that, even in a dry summer like we have just experienced, there is sufficient watery

vapor rising by evaporation to carry up germs in our vleys, etc.; but then there is the fact that the season has been remarkably free from it so far, while fever of a malarial type has been more than usually prevalent amongst human beings.

From the above it will be seen that I do not attribute the diseases under consideration to malaria. It is well known that redwater followed a steady course along the main roads of the colony before it prevailed to any extent on farms to which it had been carried from the roads. There is reason to believe, from Kafir tradition, that it existed here some time before the advent of Europeans, and that the germs had laid dormant until causes—which we are unable at this time to recognize—favored their development and introduction into the animals' systems, and consequent increase and spread. As it is only lately, however, that it has been determined that these organisms are the sole causes of these diseases, it will be well to refer to some statements and experiments which have been made to show the manner in which they enter into the system.

Professor Greenfield, Superintendent of the Brown Institution, London, in a lecture at the University of London, on the 17th December, 1879, in the course of his remarks stated that, "Food is the most ready means of conveyance of contagion, and experiments prove that the disease occurs most readily when there are wounds in the mouth. The endemic prevalence of anthrax in pastures is attributable to persistence of virus in earth, and it is possible that, at certain periods of the year, bacilli in the soil have their power of generating disease roused into activity."

Pasteur has shown conclusively that anthrax germs are brought to the surface of the soil over graves of animals that have succumbed to the disease. He further confirmed this by inoculating with the virus so obtained and producing the disease.

Sheep and other animals pastured in enclosure containing these graves died of virulent anthrax.

In some of these cases it was found that the animals exposed to the contagion resisted it until cut barley, spines and dried thistles were mixed with the food.

"The tendency of the rough fibre to irritate the mucous

membrane, and facilitate the action of the germs, is paralleled by the apparently similar action of stubble, which is shown by the increase of mortality amongst sheep when placed upon it."* This will assist us in realizing the way in which our redwater, horse-sickness, etc., is taken into the system; and the probability of the germs being taken in with particles of dirt on the food must not be overlooked.

It has sometimes occurred to me, however, that the germs of these diseases may be taken into the tissues of the grasses themselves, and by that means conveyed into the system with the nutritive matters. Bacteria have been found in fruit trees, affecting the starchy elements, and causing what has been termed "anthrax of trees."

As these germs are found in the soil, and to some extent nourished by it, we are justified—by ascertained facts, and in the absence of proof to the contrary—in assuming that the contagium only enters the system by the food, water, or inoculation, and not by the respiratory organs at all, and, consequently, that the theory of the malarial origin of our horse-sickness—which I have always opposed, *vide* report in "Natal Almanac," for 1879—cannot be sustained.

(To be continued.)

AN INQUIRY

INTO THE ETIOLOGY AND PATHOLOGY OF THE VENEREAL DISEASES OF MAN AND OF THE LOWER ANIMALS.

BY CHARLES F. RING, M.D.

(Continued from page 162.)

Baumler writes: "The character of the disease originally so malignant as to occasion universal alarm, before long grew milder. Even during the second decennium of the sixteenth century the course of the disease had become much less severe; other symptoms than those seen at first gradually became prominent, and by the middle of the sixteenth century we find various physicians

* From the *Veterinarian*.

(Hieronymus, Fracastorius and Anton—Musa Brassavolus, amongst others) expressing the opinion that the disease would continue to grow milder, and finally become extinct. To be sure, this hope has not yet been realized, but the fact of there having been indications which appeared to justify it then leave us to conclude that the diseases in the first half of the sixteenth century manifested much the same forms and course as at the present day. But even now we see a repetition upon a small scale of this early epidemic outbreak, with the virulency of the disease at the commencement and its subsequent gradual modification in instances where syphilis has suddenly invaded localities previously exempt. Such instances have been occasionally observed in late years, in consequence of the sudden invasion of certain regions by troops and seamen. Where the conditions are peculiarly unfavorable and the locality retired, the first outbreak of syphilis is apt to show a remarkable intensity, but after the more virulent forms of the disease have become extinct, a certain hereditary taint is often left behind which manifests itself amongst the later generations in the form of manifold chronic affections, these latter receiving the name generally of the locality where they made their first appearance." (Ibid. p. 17).

If now it be clearly shown that syphilis is the lineal descendant of yonder famous epidemic, we will at once turn our attention to the more important portion of our subject, viz.: To the consideration of the cause or causes—for there must have been at least a *specific* one, giving rise to the epidemic itself, and hence to syphilis.

ETIOLOGY.

"Nature is much poorer than I take her to be if she cannot afford a solution for this difficulty."—EDISON.

We cannot better commence this portion of our subject than by taking as a clue, for future investigation and study, that "curious idea" promulgated by Leonardo Fioravanti, an Italian alchemist, which is as follows: "The length of the siege of Naples having caused a famine among the French and Spanish troops, the merchants who brought food to the soldiers sold them various articles prepared from human flesh, and all those who made use of the horrible aliment were soon affected with syphilis,

which was disseminated by contagion through Italy, France and Spain." * * * "Lord Bacon credited this story and endeavored by his writings to render it more plausible." (Helmuth's System of Surgery, 3d Ed. p. 145).

That the eating of human flesh alone could hardly have caused this epidemic must be at once apparent to all medical men, for, unless the dead had suffered from some specific disease, a pyæmia or a septicæmia at most could have resulted therefrom. What, then, could have been the nature of the food or poison taken; for we must at least credit the alchemist's story of the famine—which only agreed with what many others have written upon the same subject.

Now, it is *not* the most natural thing to suppose that recourse was first had to human flesh, when food far less repulsive to the feelings, if not to the palate, was not difficult to obtain; and we cannot but consider that it was horse flesh instead of human that was furnished by the butchers, and that this was diseased—diseased with the glanders or farcy.

We are strengthened in taking this initiatory step when it is known that glanders prevailed to a considerable extent among the horses employed at the siege, and also during the epidemic which followed, and was at one time supposed to have originated coincidentally with it, but this theory was soon dispelled when the antiquity of glanders became known, it having been described by Aristotle fifteen hundred years ago.

As ideas that are to become established on the basis of facts, are generally foreshadowed long before the period at which they are received as corresponding to facts, let us see if we cannot find some mention in the past of this relation we have proposed.

Lafosse (senior) in his "preface" to his treatise upon the true seat of glanders in horses, states: That "great was his surprise when he found that such distemper was not only *unknown* to the *ancients*, but that it was altogether a *new disorder*, and did not appear in Europe till about the year 1494." 'Twas at the siege of Naples, after the arrival of the Spaniards from their discoveries in America, that glanders in horses appeared for the first time.

"Parazzer is the first author who has mentioned it—he himself was at the siege; and the Spanish authors are the first who have

given us the history of this disease, which they term 'muorano.'

"Dupuy, however, in his prefactory history—'Partie Historique, contradicts this account on the authority of M. M. Masse and Jourdain, two French veterinary writers, who have been at the pains to translate the writings of the Greek Hippiatrests, and from whom, he says, we learn that the father of medicine himself, Hippocrates, was acquainted with the disease, and has in its confirmed stage, pronounced the malady incurable.

"Bourgelat, 1765, the great founder of the French veterinary school, believed glanders to have its source in *the corruption of the blood* and humors of the body, and thought there was a great analogy between ulceration of glanders and venereal chancres.

"Paulet, however, as we learn from Hurtrel d'Arboval, was the French writer who specially drew attention to the similarity there existed between glanders and syphilis.

"There is a class of diseases affecting man, eruptive in nature, and several of them contagious—the *exanthemata* whose character it is to commence with fever, which on the appearance of the eruption, either altogether leaves the patient, or much abates in violence; and to these diseases, glanders and farcy, in this respect, may be said to bear more or less analogy; this, however, is not the case with syphilis* even after it is supposed to have become constitutional; a circumstance in which it differs from glanders, though by many between the two diseases there has been thought to be, and it must be confessed there certainly is, in some other respects, a good deal of resemblance." (Percivall's Hippopathology, Vol. III, article, Glanders).

Van Helmont (1682) sought to refer to glanders the origin of syphilis.

Mr. Gollman writes (on Diseases of Urinary and Genital Organs, p. 143): "As regards genuine syphilis, it is not by any means impossible that this disease, like glanders and small pox, may have been transmitted to man by the brute creation. It is well known that many diseases are engrafted upon the human species by animals, and are afterwards developed among mankind as a disease peculiar to them."

*"Syphilitic fever usually disappears soon after the general eruption comes out." (Keys, Ibid., p. 102).

And Professor Bollinger repeats (Ziemssen's Cyclopædia, Vol. 3, p. 314): "When we consider the diseases capable of being transmitted from animals to man, we cannot fail to be impressed with the fact, that in this respect, the relation between the two species is much more intimate than is generally appreciated. In addition to the more important maladies to which our attention is most frequently attracted, (*glanders, malignant pustule, hydrophobia*) it has been shown by numerous observations that another less formidable affection, *foot and mouth disease*, not unfrequently gives rise in man to a specific disorder. The communicability of *cow pox* to many, for the knowledge of which we are indebted to Jenner, has proved one of the greatest boons ever conferred upon mankind through the medium of the medical profession."

Let us now consider what effect the eating of meat specifically diseased will have on a community in the way of giving rise to sudden and general appearance of symptoms. Professor Law writes: (Article, Malignant Anthrax, Veterinary Adviser, p. 33):

"Eating of the flesh of animals killed while suffering in this way has often conveyed the disease in spite of the cooking to which it was subjected. Fifteen thousand of the inhabitants of St. Domingo once perished in six weeks from this cause, and a whole family was poisoned a few years ago in Aberdeen, Scotland. The Tartars perish in great numbers from eating their anthrax horses."

The following interesting article "On the Etiology of Typhoid Fever," *The Hahnemannian Monthly*, March, 1881, p. 12), may serve to illustrate this point still further. The writer, after considering defective water as a cause, continues: "Again, a most remarkable epidemic of typhoid fever took place in Switzerland in 1878. It was reported by Dr. Walder (Braithwaite's Retrospect, part 79, p. 27). A choral festival was held, which was attended by about seven hundred people. Two public meals were given on the day of the festival, and of those who partook of them nearly five hundred were taken ill, some within a day or two, but more on the fifth or sixth day, and some still later. They all presented to a greater or less extent the symptoms of typhoid fever. A number of cases of secondary infection took place among those nursing the sick or other-

wise brought in contact with them. The post mortem results, as shown in several instances, permit of no doubt as to the disease having been typhoid fever. We now come to the probable source of infection of those persons who took part in the festival at Klotue. The greater part of the meat eaten on this occasion was supplied by the village inn-keeper, who was also the village butcher, and all of it (veal, pork and beef) had been pronounced by a professional inspector perfectly healthy, with the exception of forty-three pounds of veal, which were sent from a butcher at Seebach two days before the festival, and had not been examined by the inspector. The calf from which it came belonged to a peasant. It was only a few days old, and was probably killed because it was certain to die very speedily from illness. It would not suck; it lay in the straw, cried when touched, as if in pain, and at the same time kept lowing loudly. The evidence that the flesh of the calf caused the epidemic, is very strong. Not only the partakers in the feast who ate the particular veal, stewed with the other healthy meat, were attacked, but families who took no part in the feast, and in which the children had had meat and sausages given them by persons who could not consume what was served out to them, suffered. The lungs of the above unfortunate calf were sold to a lady at Seebach, and the brain to the clergyman of the parish. Three persons who dined off the lungs made into a stew were taken ill exactly like the members of the choir, and the clergymen's family were similarly affected. The evidence that the epidemic was caused by eating this particular calf's flesh, is strengthened greatly by the discovery a little later by Dr. Walder, that two calves had been infected by typhoid fever germs, their probable sources being the evacuation of a man, suffering from enteric fever, who attended to the cattle during the early part of his sickness, and who unquestionably passed some diarrhœtic stools in the neighborhood of the animals.

A post mortem of one of these animals showed intense swelling of the Peyer's patches throughout the whole of the small intestines, but especially in the lower part, with swelling of the retro-peritoneal and mesenteric glands. The spleen was enlarged. Another case in which a calf was almost certainly infected by a human being, occurred later on. Here a bucket which had been

used for washing the viscera of two patients who had died of typhoid fever, and on whom a post mortem was made, was soon after filled with water for the calves to drink, and it seems probable that some blood which remained on the outside was licked up by the calf, or else it was transferred to the stockings of the cowboy, which the animal was in the habit of licking. After an incubative period of exactly ten days the calf was taken ill and it was killed four days later. The pathological changes were exactly the same as in the other case, and microscopically the calf's intestines, in both cases were undistinguishable from a human intestine in the same stage of typhoid fever."

"There can be no doubt," says Bollinger, (Ibid., p. 300) "but that glanders may be produced by *eating the meat* of glandered horses, which, according to my experience, owing to the imperfect regulations for the inspection of meat, is not unfrequently used as food. The common process for preparing the meat for the table would naturally tend, it is true, to destroy its virulence; but meanwhile the risk of infection is incurred by the manipulation involved in preparing it."

(*To be continued*).

TRICHINÆ,

ⓧ A LECTURE DELIVERED BEFORE THE STUDENTS OF THE
AMERICAN VETERINARY COLLEGE.

BY F. S. BILLINGS, V. M.

(*Continued from page 114.*)

TRICHINÆ IN MAN.

The honor of this important discovery belongs to Dr. Zentier, of Dresden, Germany. The disease was discovered in a servant girl admitted to the city hospital at Dresden *as a typhus patient*. She died, and her muscles were found completely infested with trichinæ. At the same time that she became ill other persons of the same family and a butcher who had slaughtered a pig for them were taken sick also; similar phenomena, but in a modified form, attending them to those manifested by the diseased

maid. An examination of the pork at the house revealed the presence of numerous trichinæ in its fleshy portions.

Thudicum (see 7th report of the Privy Council, London, 1865), sums up the principal phenomena of trichinosis by man as follows: "Sudden swelling of the face, particularly the eyelids, after the patient has for some days felt prostrate, and lost his appetite (this swelling causes only a sense of tension, no pain); fever with a quick pulse and copious perspiration, which not rarely has a repugnant odor; painfulness and immobility of arms and legs; the muscles are swelled and contracted, and give great pain when set in motion by the will or touched from without; in the worst cases the entire body is perfectly immovable and highly sensitive; there is gastro-intestinal catarrh (diarrhœa), with a red somewhat covered tongue, inclining to dryness; when the swelling of the face has subsided, œdema of the feet, legs and thighs comes on; shortly afterwards anasarca swelling over the trunk makes its appearance."

The uncertainty which exists with reference to the phenomena of trichinosis humana seems to warrant the production of the following translation of portions of an article by Dr. Rupprecht in the *Vierteljahrsschrift für gerichtliche Medecin*, Vol. 33, p. 284, Berlin, 1880, with reference to the "*beginning and course of the phenomena of trichinosis, as well as those which mark the beginning and fatal termination of those dying from the disease.*"

1st period, embracing the first ten days of the disease.

INGRESSION PHENOMENA.

The first uncertain—indigestion—phenomena of this disease do not make their appearance earlier than the second or third day from the time of the introduction of the parasites into the stomach. They are caused by the movements of the parasites over the mucosa of the stomach and the next adjoining portion of the intestinal canal—duodenum, jejunum—by their progressive development toward maturity, the disturbances they cause in search of nourishment, the processes of generation of the young and the disturbances caused by the migration of the embryo through the

walls of the intestines, along the connective tissue tracts, and into the adjoining musculature. Although the parasites may not bore directly through the fibre of the muscles of the intestinal muscles, but penetrate the walls by going between these films, thus separating them one from another, still, the passage of thousands of parasites through these tissues must cause much mechanical irritation, causing inflammation of the coatings of the intestines, thereby giving rise to an inflammatory gastro-intestinal catarrh, with more or less diarrhoea and vomiting, which are to be looked upon as the initial symptoms of a severe case of trichinosis, and frequently might be mistaken as "choleroïd" phenomena. We never find fibrinous deposits or other intimations of inflammation upon the peritoneum, not even vascularisation as in mice, rabbits and swine, because the tissues are coarser, and therefore an inflammatory reaction in them is not so easily the result of the parasitic migration in man as in these animals.

Death may follow toward the end of the first, and still more frequently in the second week of the invasion, especially when the complicated organisms have been antecedently in poor condition from diarrhoea, tubercular consumption, diabetes and kindred diseases. The cause of death may be attributed to exhaustion of the respiratory muscles in consequence of general disintegration of their active elements. On account of the great danger which threatens the invaded organism, it is very important that these early phenomena of the choleroïd form, which have in general very little characteristic about them, should be promptly suspected. They generally indicate a most fatal and extensive invasion, especially when the pork has been purchased from a butcher or eaten by a large number of persons in a hotel, garrison, &c. At this early period one does not find the parasites in the motor muscles. The parasites are easily to be found in the lumen of the superior intestines and the fœces.

Cholera, either in its epidemic or sporadic form, has so many characteristic peculiarities that nothing but superficial observation can make possible a mistaken diagnosis between the two diseases. Children are especially subject to choleroïd attacks during the first ten years of their existence, giving one-quarter to one-half

the percentage of deaths, while they are but seldom the subject of trichinosis during this period, and the disease takes a peculiarly favorable course with them. Further, the diarrhoea of cholera is much more profuse, sometimes occurring twenty times in twenty-four hours, while in trichinosis it is not nearly so frequent, and is always more consistent, and in cholera the fœcal discharges are at first thick, then like rice water, odorless, alcoholic, seldom neutral, and of a low specific gravity. Vomiting results easier in cholera and in greater quantities. Phenomena indicative of the condensation of the blood, emaciation, coolness of the skin and expired air, the spasms of the muscles of the calves of the legs. &c.. all fail in trichinosis. Although emaciation also follows in the latter disease, it takes place much slower than in cholera. Secretion of urine either completely ceases in cholera, or but little is secreted, having also a high specific gravity and containing albumen or sugar.

Similar phenomena may be presented in gastro-enteritis due to poisoning. The differential diagnosis will, however, be frequently aided by the discovery of the poison in the vomited materials, or in the intestinal contents, aside from the specific phenomena which often characterize the action of many kinds of poison.

Endemic cholera also attacks children especially. The stools are characterized by loose coagula, or by their frothy, yeast-like nature, acid reaction, richness in albumen, lumpy character and offensive smell. Notwithstanding the profusion of the discharge one finds, on abdominal percussion, quantities of fluid in the intestines, which is not met with in trichinosis. Although the phenomena of the endemic may have a strong resemblance to those of the epidemic variety, still they are not to be easily complicated with those of the latter form, or of trichinosis. The choleroïd form of the latter disease always indicates the consumption of trichinous meat, which must have taken place within the preceding 10 or 14 days, as well as a plentiful infection of the pork consumed. If we assume the weight of an ordinary microscopic preparation of trichinosis meat to be 0.02 grms (one-third of a grain)

and a decigramm to contain 50 trichinæ, a gramm would lodge 5,000 and a pound 250,000; and if the flesh of a swine weighs 50 pounds, then its body would lodge 12,500,000 of these parasites. At this ratio, every person consuming a quarter of a pound of such pork would introduce into his system 62,500 trichinæ. Following out the history of reproduction of these parasites, we may assume that it requires at least *thirty* millions of these parasites to produce the choleroïd form of this disease.

2d period, third and fourth weeks.

DIGRESSION PHENOMENA.

While the microscopic demonstration of intestinal trichinæ and embryos is the only sure means by which to diagnose the disease during the first and second week, for the third and fourth we find phenomena presented which have more distinct characteristics. The œdema, swelling of the eyelids, forehead, temples and cheeks does not become apparent before the tenth day succeeding the invasion. The œdema has the natural color of the skin, scarcely any increase of heat being perceptible, and is without pain. The conjunctivæ soon become injected and swollen, and the eyes present a somewhat glassy appearance; movements of the eyeballs, especially upwards, soon become more or less painful; the accommodation limited; the pupils dilated and the papillæ swollen and injected. The general inflammatory reaction of the organism presents at first the characteristics of a traumatic fever, but soon assumes a typhoid character, in consequence of the consumption of the muscular elements by the parasites, the profuse perspiration of the patient, loss of sleep and food, muscular degeneration and pain. As these phenomena especially mark this period, it may well be called the typhoid. Other changes present themselves which are also peculiar to trichinosis, such as œdema of the neck, towards the end of the third week, which often threatens the patient with suffocation from the compression caused thereby. In other cases towards the fourth week, embolic pneumonia, pleuritis, or broncho-tracheal catarrh frequently become apparent. Pneumonia in such cases generally ends fatally. Pleuritis and the catarrh are not so apt to. In

severe epidemics this period is marked by the greatest number of severe complications and fatal terminations.

3d period, fifth and sixth weeks.

PHENOMENA OF REGRESSION.

We may assume regression as beginning when the encapsulation of the parasites commences to take place, which comes to pass about the twenty-eighth day of the invasion. The duration of the disease in severe cases cannot be well fixed, as it may extend over many months before all disturbances have come to an end. In most cases the recovery begins during the regressive period and goes hand in hand with the regeneration of the musculature of the organisms. Most persons are able to assume their vocations after the sixth week. The urine, which has been thick, cloudy and lessened in secretion, begins to become too clear and more profuse in quantity with the twenty-eighth day. On account of the preeminence which the pains in the muscles assume over the other symptoms during this period, it may well be called the rheumatoid.

(To be continued.)

EXPERIMENTAL PATHOLOGY.

UPON THE DURATION OF THE EFFECT OF THE PREVENTIVE INOCULATION IN SYMPTOMATIC ANTHRAX AND UPON THE TRANSMISSION OF IMMUNITY FROM THE MOTHER TO ITS PRODUCT IN THE BOVINE SPECIES.

BY M. ARLOING, CORNEVIN AND THOMAS.

A. It is important to know the duration of the immunity enjoyed by animals of the bovine species against symptomatic anthrax by the intra venous injection of the virus. It has been already reported that thirteen animals vaccinated in February, 1881, were, in October, eight months after, still enjoying immunity. Recent experiments have shown that this will last for 17 months. A heifer had been inoculated on the 30th November, 1880. On the 21st of April, 1882, one cubic centimeter of virulent pus was placed in her crural muscles. A cobaye inoculated with the same matter died in 24 hours.

B. Amongst some animals inoculated in November, 1880, were five cows which had been put to the bull in September, two months before the intra-venous inoculation. All the cows had calves, and their gestation was normal, except in one, which calved at eight months. The calf lived.

The five calves were inoculated twelve to sixteen days after birth, with very strong virus. None were sick, and the local action of the virus was unnoticed, the general effect being insignificant.

It is consequently established that a female of the bovine species which receives immunity against bacterian anthrax during the first month of gestation transmits it to her product. We are unable to say if she would also transmit it to the products of other gestations.

C. There are, however, two observations on the subject which may prove to involve certain important suggestions.

Two of the cows inoculated in November, 1880, had not been fecundated when covered in the preceding September. They were again presented to the bull, after being inoculated, one twenty days, the other three and a half months, after the preventive inoculation. The bull was also enjoying immunity through a previous inoculation. The two calves which came from these cows also resisted the effect of inoculation with strong virus.

Did the immunity in these cases originate with the cow or the bull? Other experiments will solve this problem.—*Gazette Medicale*.

UPON THE MECHANISM OF THE STOPPAGE OF HEMORRHAGES.

BY M. G. HAYEM.

In the cases of wounds of a blood vessel, the hemorrhage, great at first, diminishes by degrees, and then ceases. This result has been explained by contraction of the vascular coat. But can this be sufficient? Then the coagulation of the blood has been considered as one of the causes. A moment's reflection will, however, show that in the stoppage of the flow of blood by the formation of a clot there is something peculiar, whose mechanism

we propose now to study. Indeed, during the hemorrhages the blood which passes between the edges of the vascular wound is always new; if this blood is collected in a basin it will not become a gelatinous mass for several minutes. Why, then, does a solid clot form itself between the edges of the open wound strong enough to resist the issue of any more blood?

Let us see. After laying open the jugular vein of a dog we wait until the hemorrhage has ceased, and immediately place a ligature upon the peripheric end of the vessel, when we may easily extract from the wound a nail-shaped clot whose point penetrates the vascular cavity while its head is spread upon the external wall of the vein. If we immediately dip this clot in a liquid which fixes the elements of the blood, its microscopic examination can be readily made, and the point and central portion are greyish, viscous and composed partly of granular and amorphous matter. The granulations consist of enormous masses of hematoblasts, already altered, but still quite distinct from each other, the amorphous matter being the product of the union in mass, and solid, of the hematoblasts most altered. The head of the nail, which is red externally, has in its center a prolongation of the hematoblastic viscous matter, and at its periphery fibrillæ, containing a large quantity of red globules, while in the whole central portion, properly speaking, the closing part, very few white globules are seen. It is evident, then, that the fibrin has been added to the condensed cork, formed almost entirely of hematoblasts.

The formation of the cork may be easily followed under the microscope in the mesentery of the frog.

After exposing a middle-sized vein under the microscope, and making an incomplete section upon it, an abundant hemorrhage takes place at once, and for a few seconds nothing but a red mass can be seen around the wound. The flow of blood soon diminishes and it runs more slowly until it is surrounded by a ring of elements firmly resting against each other, and adherent to the opening of the vessel. Some moments later the orifice of the wound becomes seared by a kind of whitish mass, through the elements of which the red globules enter with difficulty. Far

from being formed, as has been said by some observers of white globules, this mass is composed of the hematoblasts, which were little by little stopped at the time of the hemorrhage, and when this ceases these elements are seen to be almost notably altered, and under close observation may be observed undergoing the characteristic changes already mentioned.

The hematoblasts which serve as a closing cork contain only a small number of red globules. Those are spherical, smooth on their surface, and non-adherent, as a careful observer may discover, as, owing to their amoeboid contractility they may be seen to move away from the mass of the hematoblasts, as they do in the blood placed between two pieces of glass. They do not seem, then, to participate at all in the stoppage of the blood, and still they possess their physiological properties and their normal anatomical characters, the hematoblasts of the hemostatic cork being already deeply modified.

In this process the edges of the wound seem to act as a foreign body, and it is easy to determine directly how the hematoblasts act towards such a body introduced into the circulation. A fine needle slightly curved, and armed with a silver or platinum wire, is forced through the jugular vein of a dog, for instance, and a centimeter of the wire left in the vessel. When the operation is skillfully performed scarcely one drop of blood will appear at either the point of entrance, or that of the withdrawal of the needle. After two or three minutes (a sufficient time in the dog, whose hematoblasts are easily wounded) the venous portion occupied by the wire is emptied by means of two ligatures, one the peripheric the other on the central extremity. This portion of the vein is immediately removed, and after having been dipped into a liquid to fix the elements of the blood, it is opened. The wire will be found already surrounded with a greyish layer, at intervals slightly rosy, composed of numerous hematoblasts, the more easily recognized as the wire has remained the least time within the circulating blood. If the wire remains a longer time in the blood and its covering becomes more voluminous, the constitution of the wire will then be entirely analogous to that of the hemostatic nail which we have described.

The hematoblasts, then, play an active and important part in the mechanism of the stoppage of the blood. These elements are so easily altered that as they come in contact with the edges of the wound they become adherent, as they do when meeting a foreign body. Gathering round the open orifice of the vessel, they form an obstacle at first insufficient; then the hematoblasts first arrested, in their turn detain the new ones brought in contact by the movement of the circulation, the orifice diminishing more and more; a solid and well fixed cork finally closing it entirely.

The other elements of the blood and the formation of the fibrine participate in this process only in an accessory and secondary manner.

The blood then contains within itself a powerful hemostatic capability, or, to make our meaning more intelligible, we would say that if it were possible to remove from the normal blood all the hematoblasts the wound of a vessel would produce a hemorrhage which would have no tendency whatever to stop spontaneously.—*Academie des Sciences, Comptes Rendus.*

PHYSIOLOGICAL CHEMISTRY.

ACTION OF OXYGENATED WATER UPON ORGANIC MATTERS AND FERMENTATIONS.

BY M. P. BORT AND P. REGNARD.

Conclusions.—1st. Oxygenated water, very weak, stops fermentations due to the development of living beings, and putrefaction of all substances which do not decompose it.

2d. It has no action upon diastasic ferments.

3d. Weak oxygenated water is not destroyed by fats, amylaceous substances, soluble ferments, albumen of egg, caseine, peptones, creatine, creatinine, or urea.

4th. It is rapidly destroyed by nitrogenous collageneous matters, muscine, fibrine of the blood, and several vegetable nitrogenous elements.

5th. This action is definitely arrested by a temperature of 79 degrees. Putrefaction leaves it perfectly intact.—*Gazette Medicale.*

PATHOLOGICAL PHYSIOLOGY.
OXYGENATED WATER IN SURGERY.

BY PEAN AND BALDY.

The following conclusions are derived from numerous observations of the use of oxygenated water in the treatment of surgical wounds :

1st. Water containing from two times to six times (according to the case) its volume of oxygen, may advantageously take the place of alcohol and phenic acid in surgery.

2d. It may be used externally for the dressing of wounds in various forms of ulceration, in injections, in fumigations, upon a certain number of patients, and in some affections, such as pyemia, septicemia, tuberculosis, diabetes and erysipelas.

3d. Dressings are made with bandages covered with oil silk, and renewed two or three times a day, as the case may require.

4th. The results so far obtained, after severe operations, have been satisfactory. Not only recent wounds, but also old and sphacelous ulcers go on safely toward cicatrization when thus treated. Reunion by first intention in wounds of amputation can be produced by this mode of dressing.

5th. The general as well as the local condition seems to be benefited by its use. It reduces the traumatic fever.

6th. An advantage of oxygenated water over phenic (acid) is that it is not followed by any toxic action or bad odor. Its application is not painful.

7th. Not only surgical wounds, but many other affections seem to be benefited by its use, to wit, all kinds of ulcerations, deep abscesses, ozena and purulent cystitis.—*Societe de Biologie.*

EDITORIAL.

THANKS TO OUR FRIENDS.

In resuming our labor in the editorial chair of the REVIEW, it is with great pleasure that we offer our friends our thanks for their kindness and for the numerous letters of welcome which

have reached us. In the settlement of matters and correspondence which had accumulated during our absence, we may have overlooked acknowledgment to a few who have sent us communications and reports of cases for the REVIEW. To those, also, we offer our tardy but not less sincere thanks.

TEXAS FEVER AND CATTLE COMMISSION.

In 1868, a disease which was then comparatively unknown, made its appearance in the Eastern States, and cattle were found in the various stock yards, even those of New York city, dying affected by it. It was the splenic, or Texas fever, which had been brought to our side of the United States by droves of Texan cattle.

The excitement was great. Commissions were organized; boards of health urged and carried on investigations; the subject, in fact, became one of national interest, and Prof. Gamgee, then traveling in the United States, was appointed to investigate the disease. His report to the Commissioner of Agriculture is well known to all the members of the profession.

Since those days, no doubt, the veterinary profession began to show its importance in the United States.

Following, a few years later, in 1872, the extensive attack of epizootic influenza made its appearance, and the losses which resulted from it—not only in live stock, but in general business—are yet fresh in mind.

With this disease came to us the sensation brought on by the action of the English Government, in relation to the existence of contagious pleuro-pneumonia in some of the Eastern States; while we had also before us the losses inflicted by the presence of hog cholera in the West, and those which must prevail on account of the difficulties existing in relation to the importation of American pork in some parts of Europe.

All these separate circumstances and facts have necessarily stimulated the attention of our General Government, and after many struggles and many difficulties the Treasury Cattle Commission was organized; and with the confidence following the

appointment of such men as Prof. Law and Dr. Thayer, the profession feels that we shall soon have in the United States a well-organized Veterinary Sanitary Bureau. Then, when we shall hear, as at present, of diseased cattle moving East—when the newspapers bring us news of the appearance of Texas fever in Pennsylvania or New York State—we shall feel that there is no need for alarm, as the Cattle Commission is watching. Though the Commission has been lately engaged in studying the organization of the Canadian Sanitary Police—more with the object of preventing the importation of contagious diseases than other sanitary regulations—we feel that it is taking the best measure to check the progress of that anthracoid affection, and that we shall shortly hear of its disappearance from this part of the country.

UNITED STATES VETERINARY MEDICAL ASSOCIATION.

Once more we call the attention of our readers to the Twentieth Regular and Anniversary Meeting of this Association, which will be held in New York city on the third Tuesday in September, in the Lecture Room of the College.

The Association, which has steadily increased in numbers and in strength, will, no doubt, see many of its members gather together on that occasion; and from various reports which we have received, we think that the meeting will prove one of the most interesting since the Society was formed. There is no doubt that besides the reports of the various committees, several interesting papers will be presented, and to all appearance the usual time devoted to the meeting will be too short for the amount of business which will be transacted.

It is hoped that members will endeavor to arrange their affairs so as to be present. The Comitia Minora meets at 10 A. M., and the regular meeting opens at 11 A. M.

TRICHINÆ WANTED.

We would be very thankful to any of our friends who would provide us with two hams and two pieces of preserved lard, obtained from an animal affected with trichinae—one of the speci-

mens being smoked, the other salted. They can be sent to us by express, at our expense.

They are asked for by one of our colleagues abroad, who desires to make investigations of infected meat.

We respectfully call the attention of veterinarians engaged as officers, in the capacity of meat inspectors, to the above notice.

REPORTS OF CASES.

FRACTURE AND DISLOCATION OF THE PATELLA.

BY J. G. MEYER, JR.

April 4th I was requested to visit a bay gelding five years old, which during a runaway accident on the forenoon of the same day received a violent fall upon the hard turnpike, and was dragged a short distance by the horse he was hitched with. He sprang to his feet without assistance, and though very lame, was led a distance of one mile and put into a stable, where he broke out into a profuse perspiration. He being under considerable excitement and in great distress, his owner was prompted to turn him out into an adjoining field, where, on my arrival I found him standing with the injured right hind limb in a flexed position resting on his toe. When forced to move, extreme lameness is exhibited, resembling very much that of a case of hæmoglobinuria, or what is designated as azoturia by some authors, in which the chief sub-paralytic manifestations are located in one hind extremity only.

An inspection of the limb reveals the presence of a decided swelling and deformity at the stifle joint. An abrasion of the skin on the inner side of the stifle joint is visible. Palpation furnishes the detection of fluid, either blood or serum, or more probably both, within the swelling. An abnormal bony protuberance can be easily felt on the outer side and lower border of the femoro-tibial articulation, which is the external fragment of the fractured patella. Its replacement into the trochlea is easily effected by applying the hand against the dislodged fragment and pushing it gently upwards and inwards, when it will drop into its proper position, but as soon as the horse attempts to put any weight

upon his foot the uncontrollable piece of bone jumps from its normal to the abnormal position, notwithstanding the continued support being practiced by the hand to keep it in situ. Repeated attempts to effectually reduce the luxation are frustrated by the same resisting influence. The internal fragment of the patella is at this examination not perceptibly dislodged, nor does it convey any preternatural mobility by manipulating this region but, as the post-mortem examination has shown it did, either at the time of accident, or at some subsequent time, slip from the trochlea into the space in front of the internal condyle of the femur. This fact did not occur to me on my ante-mortem examination, owing to the extensive swelling, and the fixedness of the fragment. Being confident that it is impossible to bring the fractured portions of bone into their normal position and to retain them there by any conceivable means, and without this the case being necessarily incurable, I ordered him to be destroyed. The owner, however, objected, and concluded to keep him in pasture, speculating on a spontaneous cure. To satisfy my inquisitiveness as to the progress of the case, I repaired to the place again on the 16th of June and found him running at large. He was considerably emaciated, but I am informed that he was in a worse condition, and is now thriving again. His right gluteal and crural region of muscles are very much atrophied. He stands resting his toe on the ground, and when urged to go, bears considerable weight on his toe, at the same time keeping his stifle and hock joints much as on my first visit. This position, with the atrophy of the muscles, makes a shortening of the limb quite obvious. The stifle joint is very prominent, swollen, indurated, and painful to the touch. By manipulating the external mass of the fractured patella, which still lies at the outer and lower surface of the inferior extremity of the femur, probably not quite as low as on my preceding examination, I perceive a limited motion conveying a gritty, squashy sensation, owing to the adhesions and adventitious tissue that have formed around it. For the reason that the horse has improved somewhat in his gait, and the acute symptom having subsided, his owner is still unwilling to have him destroyed at present. I however, endeavored

to convince him that an entire recovery is an utter impossibility, and asked him to notify me when he was ready to dispose of him. He accordingly, on the second of July, requested me to come out to his place to destroy the horse, which long-sought-for opportunity, I was exceedingly eager to accept, and allowed him no time for a reconsideration. On this visit I find that he has continued to improve. He walked upon his toe without displaying any great amount of lameness. His limb is resuming a more erect position. The contour of the stifle joint is as extensive, and firmer than ever. The external fragment of the patella is movable upwards and downwards about an inch, the internal fragment apparently stationary. Still ignoring the possibility of a radical cure, I had him led to his burial place, and injected half an ounce of cyanide of potash, dissolved in one ounce of water, into his jugular vein at one injection, which caused his death in one and a half minutes.

After removing the integument and muscles from the femoral and tibial region, I sawed the femur through at its upper third, and disarticulated the tibia from the tarsus. A great mass of dense fibrous tissue is surrounding the stifle joint. Disarticulating the joint gave vent to a copious flow of synovia. The appearance of the joint is glistening and roughened on the rubbing surfaces of the fractured fragments, and the corresponding abnormal articulating surface of the femur. The external fragment of the patella is oval and articulates with the femur on the external lateral surface of the trochlea. The internal fragment is triangular and is resting in the fossa between the trochlea and internal condyle of the femur. It does not have as much freedom of motion as the external fragment has. The hypertrophied ligaments surrounding the stifle joint, in combination with the adventitious tissue, form a powerful fibrous band extending from one fragment to the other, measuring four inches from side to side, five inches from above and downwards, and varying from one half to one inch in thickness. This fibrous structure serves to connect the two pieces of bone which are firmly adherent to it, also to fill up the vacant spaces created by the subsequent separation of the two fragments. Although very remote from per-

fection, here is an example of one of nature's marvellous accomplishments in conservative surgery. The band of ligamentous union of the two fragments and the new articular surfaces which have been formed for the play of these abnormally situated portions of bone, has enabled the animal to walk about with comparative ease.

Accompanying this report I send for the museum of the Veterinary College the dry specimens of this rare case as an auxiliary to the valuable and interesting collections of pathological specimens her museum is already invested with.

[Dr. Meyer will accept our thanks, not only for the specimens, but also for the veterinary instruments of *primitive* fabric which he has sent us, and which have been added to the collection of the College.—Ed.]

UNUSUAL MORTALITY AMONG SUCKLING COLTS.

BY N. S. TOWNSHEND, M.D.

The number of young colts of a few days old that died the last spring in central Ohio was unusual. In the absence of reliable statistics we can merely give the impressions of intelligent farmers. One said that more than a fourth of all the colts foaled in his neighborhood had died when a week or two old, and after two or three days of illness. Another said that half the colts dropped within the range of his acquaintance had died. A third went so far as to say that three-fourths of all the colts dropped in his neighborhood had died.

For this region, the spring was unusually wet and cold. After the corn had been planted, much of it did not germinate; from the coldness of the ground or late frosts many fields needed planting two or three times. Such was the character of the season when most of the colts in this part of the country were dropped.

With colts that died, the first thing perceived to be wrong was lameness of one hock-joint. This joint would be found hot, swollen and painful, so that the colt could not stand, and giving the impression to the owner that it had been stepped on by the

mare, or in some way received a severe injury. After two or three days other joints would be swollen, but often before anything but a hurt was suspected the colt would die.

In two of these cases the writer had the opportunity to make post mortem examinations. In both cases the cavity of one hock joint was distended with thick pus, and the capsules of the knees and fetlock joints were filled and distended with serum. The kidneys were congested, and only a little high colored urine was found in either bladder. The bowels of one colt were excessively constipated; the other had been the subject of mucous diarrhoea. In both cases the pericardium was distended with serum.

These, then, were manifestly cases of rheumatic arthritis and pericarditis; in most of the cases of this character the true nature of the difficulty had not been understood. Probably very few of them were seen by any veterinary surgeon or had any appropriate treatment. I shall be glad to learn if any other parts of the country have suffered in a similar manner, or whether the same difficulty has been more promptly recognized and more successfully treated elsewhere.

ANTHRAX IN THE WEST.

BY G. S. AGERSBORG, D.V.S.

In one of his able and instructive lectures before the students of the American Veterinary College last session, Dr. L. McLean propounded the new theory that in anthrax districts nearly all cattle had in their blood, in a dormant or latent state, bacteria which developed and multiplied rapidly in the animals when being driven fast. This theory was greatly at variance with our experience here in the northwest, where the first thing we do when symptoms of anthrax present themselves in an animal is to bleed him and then drive him as rapidly as he can run until he becomes nearly exhausted, and very often the best results follow. The general outbreak of anthrax this spring in south-eastern Dakota among swine on widely separated farms, and in all cases under the same circumstances, led me to the belief that Dr. McLean's observations in the south-west were correct.

The circumstances of the outbreaks here are all the same, viz.: The animals on being turned out this spring from their close pens into large pastures commenced to show their joy by running rapidly around. Then some of them would suddenly stop, lie down and show symptoms of anthrax, from which they would die in from six to twenty-four hours after being turned loose. Probably ninety per cent. of those attacked would die within six hours and ten per cent. live from twelve to twenty-four hours, and the trouble would be at an end—no more anthrax in that herd. Now, does not this confirm Dr. McLean's theory? But where did the anthrax germ come from in the above cases? This is a question of the etiology of this disease difficult to answer, at least until we learn more of its history.

On many of these farms the pig pens were new and clean; the pastures were on the virgin soil; there were no animals near which had been introduced from other localities. The surface of the soil was not such as would favor the development of anthrax, the farmers living on high, dry land, with no standing water or sloughs suffered to exist. On the wet bottom lands, yearly overflowed, and where a person can smell the malarial effluvia miles off, no cases of anthrax were observed, but here the swine are running loose nearly the year round; another point to strengthen Dr. McLean's theory. On these low lands anthrax is a *bona fide* resident, but its ravages are not so heavy now as they formerly were, although no precautions are taken by farmers to bury, burn, or otherwise destroy the cadavers. We should be led to think that the swine here would be more exposed to contagion than on the dry land; but, for once, this rule does not apply, or it may be that the constant running around tends to lessen the development of the bacteria.

Prof. Nocard, of the Alfort Veterinary College, in *Arch. Vet.* No. 3, 12, asserts that anthrax has in several cases been introduced on farms where it formerly was unknown, by artificial means, such as dried blood, &c. May not the disease also have been introduced on such farms by some similar means? What these may be I am unable to determine, although the strictest inquiries have been made.

PERITONITIS.

BY F. B. ROGERS, D.V.S.

On the 4th inst. I was called to attend a brown mare, aged, the property of a hides and fat man. Temperature 102 F., respiration normal; slight dullness over lower part of right lung; slight discharge, catarrhal in character, from eyes and nose; very stiff all around; no fever in feet. *Diagnosis*; pink-eye. *Prognosis*, favorable; *Treatmeat*: a stimulant electuary, and frictions of soap liniment to legs. On the 6th at 10 a. m. I was again called to see her, the owner stating that she had manifested slight colicky symptoms since 7 p. m. the previous evening. When I saw her the mare was looking anxiously at the right flank, the pulse at the jaw weak, not much accelerated, and intermitting. Profuse diaphores; has some tympanitis. Rectal and vaginal mucous membrane injected—the latter “mauve” tinted. There was considerable tenderness on pressure over the floor of the belly, and the mare died at 11 a. m.

Post mortem was at once made, and showed considerable dirty exudate into the peritoneal cavity, with layer of recent lymph and the same condition of affairs in the thorax. The stomach was entirely interwoven by meshes of the new formation, which were dirty red in color, and the same appearance was observable in the greater part of the mesentery. The intestines were empty and somewhat distended with gas, the mesenteric vessels engorged, with patches of purple discoloration over the intestines. The parietal peritoneum was little altered, the parietal pleura not at all.

Now, this mare died from peritonitis, and died in 24 hours from the first appearance of symptoms; there was no tenderness on pressure or any other abdominal symptoms at my first visit.

The question of interest to me was, what caused this condition of affairs; was the peritoneal inflammation caused by the same *materiæ morbi* to which the influenza was due? or was it due to the absorption of poisonous matter from the infected atmosphere by which her owner's business surrounded her? Considering the rapidity of her taking off, the pathological conditions were not

marked and the cause of death must be looked for in the condition of the circulating fluid. I may add that about a week previously I sent the man the carcass of a cow dead in the early stage of puerperal peritonitis.

SPINAL MENINGITIS, THE RESULT OF COPULATION IN A
PREVIOUSLY "VIRTUOUS" STALLION.

BY W. B. ROWLAND, D.V.S.

The case of which I make a report was a chestnut stallion 9 years old, 15.2 hands high. This horse is used daily as a gentleman's roadster, and previous to this attack he was never known to have covered a mare. He was taken from his stall on the night of June 28th and allowed to cover two mares, without the owner's knowledge or consent. The groom informed me that he was "well and hearty" that evening. I learned that he was brought back in perfect condition, although a little excited. He was placed in his box stall and left for the remainder of the night. The next morning the groom came to me, saying that the horse was "foundered" and couldn't get up. I saw him immediately and found him in the following condition: Sitting on his haunches and struggling violently to get up, which he was unable to do, owing to a paralysis of the abdominal extremities. Pulse feeble and accelerated, respiration about 40. He was helped up and placed in slings. His feces and urine were removed; the latter was clear and apparently normal. Diagnosis, spinal meningitis. After he was fixed comfortably I also noticed a peculiar cramped condition of the triceps cruralis muscles of the off hind leg.

My object in writing this article for the REVIEW is to ascertain whether or not this disease is common under similar circumstances, and if not, to know whether any other members of my profession have met similar cases. It may or may not be a bold assertion for a youngster in the profession like me, but I have ventured to express my opinion that copulation was the exciting cause of spinal meningitis in this instance.

EXTRACTS FROM FOREIGN JOURNALS.

DEVELOPMENT OF FAT IN THE ANIMAL BODY.

BY G. S. AGERSBORG, D.V.S.

It is now no longer doubted that the fat, so recognized, which is present in the food of animals, is carried, perhaps after emulsion with the weak alkaline juices in the small intestines, through the chyle ducts directly into the circulation. Even when the fatty acids of hog's lard are found in the lymphatics of the animal examined, a great quantity of fat, with only very small portions of fatty acids and soap are discovered. We may, therefore, presume that the fatty acids in the organism combine with glycerine (originated from some other food) to form the fat. As a rule, the food does not contain as much fat as would be sufficient to explain the mass of that substance in the animal body. Years ago it was the supposition that the new formation of fat in the animal body was produced by different aliments. It was almost universally admitted that the carbonhydrates in the food furnished the material for the formation of fat, until Voit, by his decisive experiments, demonstrated that the albuminous material, after being decomposed into nitrogenous and non-nitrogenous matters formed, in the latter class of substances, a rich material for its formation. But as this formation is found in large amounts in the herbivora feeding mostly on carbonhydrates, than in the carnivora, subsisting more on albumens and fats, could not the influence of the carbonhydrates in the forming of the fat be denied? Experiments with milking animals, in which the fat in the milk was judged by that formed in the body, have conclusively proved that in most cases the quantity of fat contained in the food, in addition to that produced by the decomposition of albuminous matter into non-nitrogenous substances, was sufficient to produce the quantity of fat found in the milk, and that, therefore, the theory of the transformation of carbonhydrates into fat in the animal body was erroneous.

But to account for the perceptible influence of the carbonhydrates in the formation of fat, the following explanation has

been given: The carbonhydrates in the food combine more readily with the oxygen in the animal body than with any other in contributing to the formation of fat material. These, then, in the food, in addition to the fat and albumen, a comparative amount of carbonhydrates, sufficient to arrest the oxygen, and the fat can, therefore, with that from the albumen, furnish non-nitrogenous material to be used for the formation of the fat. In fact, all experiments on carnivora have proved "*that all the fat stored in the body, with that appropriated by the milk, so far as it was not already pressed in the food, is wholly derived from the digested albumen.*"

The case is different in regard to swine. Here all feeding experiments have conclusively proved that the fat fed, together with that furnished by the albumen, is insufficient to explain the enormous fat formation of the animal, and, therefore, in swine, the carbonhydrates, without which the fattening process would be impossible, is the true source of fat formation.—*Bernhard Schulze, in Landwirthschaftliche Jahrbucher, 82.*

ASSIMILATION IN THE STOMACH OF THE DOG.

In order to study the phenomena of assimilation of different substances, it is necessary to ligate the pylorus in such a manner as to render the passage of the contents of the stomach into the intestine quite impossible. These experiments have shown that iodide and ferrocyanide of potassium could be detected in the urine half an hour after being introduced into the intestine. Upon the introduction into the stomach, through a fistulous tract, of a sugar solution, it has been proved that in from one and a half to two hours, in five different trials, 30 to 78 per cent. of the quantity of sugar disappeared, having been of course assimilated. Whether this assimilation takes place by ex-or-endosmosis, it is difficult to say, because the secretion of the acid fats in the stomach in the separate trials differed so much with the quantity of sugar which disappeared. In experiments with albumen, and even with santonine and peptone, 33 to 34 per cent. of the albumen introduced disappeared in one and a half to one and three-

quarter hours ; quantities that very much exceed possible miscalculations. Here also occurred, besides the assimilation, a considerable secretion of fat in the stomach, by which the acid, as in sugar experiments, remained unchanged, irrespective of whether little or much had been reabsorbed—a proof that at least the acid secretion is not proportionate to the assimilation of sugar or albumen.—*Archiv für Physiologie*.

PARALYSIS OF THE HORSE'S TONGUE CURED BY ELECTRICITY.

The horse had been wounded by the bit, the injury resulting in a paralysis of the tongue, which was swollen and cold, mostly at the point, and protruded two-thirds of its length. Truffle made, first, superficial scarifications, and later, deeper incisions, from which exuded a viscid and somewhat bloody fluid. He then employed washings with cold infusions of chamomile, which later he used warmer and warmer to facilitate the flow of blood. The animal experienced great difficulty in drinking. The next day he scarified deeply the upper as well as the lower surface of the tongue, besides washing with warm water, and also employed venesection. The following day the tongue could be returned to its normal position, the animal ate some green food, and the prospects for recovery were good. The improvement did not long continue, and on the next day the tongue appeared as when first seen. The former treatment having given but negative results, Dr. Pagoni was consulted, who approved of the treatment employed, but advised a resort to electricity in addition.

Three days after, the scarification became filled with a bloody and serous liquid, and the sensibility began to spread. After eight days the condition of the tongue was normal. In the meantime, however, an abscess developed in the intermaxillary space; this was punctured.

As the horse became very anxious, he was given 100 grs. Cinchona bark and 12.0 carbonate of iron *per die*, with nourishing and stimulating diet.—*Il Medico Reservoirio*, Vol. 1, No. 8.

CORRESPONDENCE.

CANCROID OF THE EAR.

VERMILION, D.T., July 21, 1882.

Editor American Veterinary Review :

DEAR SIR.—A short time ago I sent you in a tin box two tumors removed from near the point of a horse's ear. The history is as follows: Early this spring a two year old white colt was brought over with the request to remove a tumor from his left ear. I found the tumor to be large, rounded and its whole surface bleeding and attached for about three inches to the rim of the cartilage of the ear; on the neck I also found two other tumors, very much smaller, of the same character, but pedunculated. These latter were removed by the elastic ligature and have not reappeared. The large tumor was removed by the knife and weighed seven and one-half ounces. On account of its constantly bleeding surface and its appearance on being cut, I diagnosed a cancrroid, which diagnosis I am by no means sure of. About 6 weeks after the tumor was removed the colt was returned to me with another, on the same place, but smaller, weighing three and one-quarter ounces. It was removed, the skin on both sides of the cartilage carefully dissected off and a piece of cartilage removed, but now after a lapse of four weeks the tumor is there again, as large as a hickory nut. Again cut off and actual cautery by the pointed needle applied. After the two first operations I told the owner to apply caustic (nitrate of silver) to the raw surface, but he claims he could not keep the tumor from growing. Would like very much to know if my diagnosis of a cancrroid is correct.

Very respectfully,

G. S. AGERSBORG.

[We regret that in our absence the specimens referred to had so much softened that their true histological nature could not be made out.—ED.]

IMAGINARY WRONGS.*Mr. Editor:*

DEAR SIR.—In looking over the last issue of the REVIEW I

was not a little surprised to find on pages 125 and 126 a prolonged wail from Indianapolis. I would not, however, crave the privilege of space to answer M. J. Treacy, M.R.C.V.S., for myself, because he means me, as I have grown somewhat indurated of late years, and therefore proof against such puerile emanations. But he unjustly and unreasonably attacks the *Turf, Field and Farm*, which I have the pleasure to represent, and which is the only publication in this country that has ever advocated the cause of our profession and dared to defend it against the attacks of defamers and empirics. He would have you believe that that paper had misrepresented him and therefore done him an irreparable injury. The fact is, the misstatement is clearly on his side of the house, which any one can readily see by referring to the files of the dates therein referred to. The question of our correspondence was: "Is he a M.R.C.V.S.?" In both instances we answered "*He is.*" Will some one inform us how that kind of statement can reflect injury. Again he says: "I maintain that no journal has authority or liberty to misrepresent me in any way without at least granting me a chance of correcting them in their error." Now, let us see how the doctor stands in that particular. He wrote us that our statement did not please him. We at once offered the use of the paper to make any statement that he desired. Our offer was, however, rejected, on the ground that his effort "would be handicapped by our comment." Which to our mind shows clearly a lack of confidence in his position. Wishing, however, to remove every quibble that could possibly be distorted into a seeming unfairness, we replied that we would not comment at all, which elicited from him a postal card bearing the following date, "5, 12, 82," and these words: "Mashed my fingers badly; can't write. Will take advantage of your kind and generous offer as soon as I can write legibly. M. J. Treacy, M.R.C.V.S."

This same card, which we now have before us, is in his handwriting, bears his signature, and is quite legible. It strikes us a commission *de lunatico* might find work to do in Indianapolis. The fact is Dr. Treacy complains because we preferred to use our own instead of his words in answering our correspondent, the

substance being the same. In short, he wants a little public notoriety at somebody's expense other than his own.

JAS. C. CORLIES, D.V.S.

OBITUARY.

One of our exchanges brings the sad news of the death of Dr. R. P. Lord, who died recently in Baltimore—a member of the Royal College of Veterinary Surgeons, from which he graduated in 1873. Dr. Lord had met with a good practice, and made a number of friends, in the exercise of his profession.

MUSEUMS AS EDUCATIONAL ADJUNCTS TO MEDICAL COLLEGES.

By M. JOSIAH ROBERTS.

(Continued from page 196.)

VI.—*Management.*

The origin, development and continued growth of museums of all kinds, and in all ages, has been in nearly every instance purely a matter of chance. *There has been no management*; no idea of the true function of a museum. "In almost every case, when the history of any of these institutions is traced, it will be found that it had its origin in quite an accidental way, and that no well-defined and intelligent system has been followed out in the establishment of those institutions meant for public instruction." (19.)

Under the head of notes, in *Nature*, the prevailing tendency on the part of museum managers to collect objects and place them upon exhibition, without reference to their utility, has been severely criticized as follows:

"But, so far from promoting this worthy end, managers of many provincial museums seem to understand nothing more than the establishment of unmeaning curiosity shops, better fitted to amaze the eyes and puzzle the brains of the groundlings, than to convey rational amusement and instruction to the people." (27, XV., 344.)

Dr. Sclater has called attention to the fact that the government of a museum should be in the hands of persons who have special qualifications for the task. (15.) In reference to the management of museums, the following observations are made in an editorial in *Nature*:

"If we look around at our public institutions we find that the machinery of those which prove themselves to be the most successful is that in which a single officer has the control, who being frequently re-elected, is responsible only to a body which criticizes all his actions, and to which he refers all serious questions of finance and management. Inefficiency on the part of the officer under this arrangement allows of his replacement without difficulty, at the same time he is

continually kept up to his work by the superior governing body, who find it a much easier task to detect faults than they would to remedy them themselves." (25.)

If the "superior governing body" be qualified to act the part of a judicious fault-finder, there is no doubt but that this plan would work well, and prevent the needless expenditure of money and valuable time in the gathering of miscellaneous and "incoherent medleys," for which some curators seem to have a craving. It would also prevent one department of a museum from being developed to the detriment of all others, just because some one happened to take a little more interest in that subject than any other. A great point in museum management is to have its affairs conducted in a business-like manner, and to avoid the dependence of any one department upon the chance enthusiasm of individuals.

VII.—*Conservator of a museum.*

There are certain duties which a curator should perform and certain qualifications which he should possess. "A curator has not merely to catalogue and arrange, but he is to master thoroughly the collections under his charge, and in this respect he differs essentially from a librarian." (Dawkins, 28.)

A correspondent of *Nature* writes :

"A specialist, though an indispensable cultivator of science, is a very bad museum curator. A curator should be like a newspaper editor, a man of general knowledge and culture. Unlike an editor, he should belong to no party, but be possessed of catholic sympathies in science and art; ready to accept and use the assistance of specialists, in a way that will subordinate all departments to one harmonious general plan. Further, he should possess an experimental knowledge of the routine duties of a museum, such as can only be obtained by training or apprenticeship in a well-organized museum." (29.)

A curator should and can be the life of a museum. This fact is well illustrated in the case of "two museums originally supported by the same grant of money. One has remained stationary for years, whilst the director of the other, making the best use of his independent position, has known how to raise the value of his museum as a purely scientific and instructive institution, thus establishing claims for additional assistance, which could not be neglected by the Government." (26.)

The prosperity of museums, their usefulness and the progress of their growth, other things being equal, will be in direct proportion to the ability of their curators and the earnestness with which they carry on their work.

VIII.—*Collecting specimens.*

Under this heading some sagacious remarks have been made by Prof. Wilder, in a letter relating to the details of collecting natural history specimens, by the Woodruff Scientific Expedition Around the World. They are as follows :

"We shall be tempted to collect indiscriminately and profusely, to accumulate skins and skeletons because easily prepared, to pack entire animals closely in alcohol, and defer making anatomical preparations until we get home. Now, the real value of a collection depends not upon its *size*, but upon its *quality*; and its quality depends directly upon the ability and disposition of the collector to discriminate between the many things that *may* be done, and the comparatively few things which *should* be done." (30.)

What kind of specimens should be collected, has been sufficiently considered for the purpose of this paper, under the head of "What Should a Medical Museum Contain?" (*Vide* p. 16.)

One great error of which nearly all collectors are guilty, namely, that of procuring a large number of rare and extraordinary specimens, while from the abundance of the common and practically useful specimens only a meagre supply is taken, should be carefully avoided, especially while a museum is in its infancy.

How many specimens of a kind is it desirable to have? Certainly more than one. I would suggest that a dozen or more be procured when convenient. Why? Because they are capital, which may be held in reserve to be used when occasion requires.

Duplicates are a medium of exchange the world over; they represent value—money value and scientific value. (32.)

"The first specimen procured, however imperfect, should be preserved, at least until a better can be obtained." (Prof. Baird, 31.)

Labeling, note-taking and book-keeping. This is an exceedingly important part of the labor of collecting specimens, and upon its being executed with *intelligence and conscientiousness*, depends very largely the value of the objects collected.

Referring to the labeling of specimens, Dr. Coues remarks:

"It is enough to make a sensitive ornithologist shiver to see a specimen without the indispensable appendage—a label." (32, 46.)

Note-taking should never be neglected, and it is that part of a collector's duty which should be performed at once after a specimen has come into his possession. *Never trust to your memory one moment, but record your observation on the spot*, was the lesson taught me by my friend and teacher, Prof. Wilder.

Every specimen should be labelled with at least name, date and number, and corresponding to this number, in a book kept by the curator, should be a complete history of the specimen, as far as it is possible to obtain it, and in addition to this the donor's name, and notice, if any, which the specimen has received at medical societies or in medical or other journals.

An accessible card list of all the specimens in the museum, arranged alphabetically in boxes after the plan used in Astor Library and other large libraries, would be very convenient both to the curator and those who wished to consult particular specimens.

Of all the duties which a curator seems most willing to shirk, is that of properly cataloging the specimens under his charge. Identification of each object beyond the possibility of mistaking one specimen for another, and permanently recording the same is so important that too much stress cannot be placed upon it.

Much more might be said with profit under this heading, but I must be content for the present, at least, with the above suggestions.

IX.—*Preservation of Specimens.*

Although the art or practice of embalming the dead is one of great antiquity, little was done previous to the latter part of the last century in the way of real advancement in taxidermy, which term means the preservation of natural history objects.

The collection of objects of various kinds which please us is a natural instinct, and one which is possessed and indulged in more or less by nearly every human

being. Taking this into consideration, the progress of the art of taxidermy has been less rapid, and to-day occupies a position less conspicuous in the way of actual achievements than would have been expected.

It would seem that chemists have not by any means done so much for us as they might have done towards discovering new and better methods of preservation. Nevertheless, some intelligent attention has been given to the subject, and we are now able to preserve organized bodies with some degree of satisfaction.

In the preservation of these objects it should be borne in mind that they should be thoroughly and permanently preserved; that their normal shapes and relations of their parts, together with as little shrinkage and loss of color as possible, should be aimed at.

But I cannot here go into detail in reference to the preservation of museum specimens. It is a subject of considerable magnitude, and to do it justice, the various processes of preparation would have to be described in full, which would prolong this paper far beyond its proper limits.

For details upon the subject, I would respectfully refer the reader to the following books and papers noticed at the close of this article, viz: No. 22, and Nos. 31 to 42 inclusive.

X.—*Financial Support.*

The importance of liberally supporting museums is set forth in the following remarks taken from the Annual Report of the Trustees of the Museum of Comparative Zoology, for 1866:

“The benefits are not local, but are shared by all, and not in one country alone, but throughout the entire scientific world. Thus, a large museum carried on in the interests of the highest education must do much towards uniting all men in interpreting the marvels of creation. We cannot afford to stint any of our educational institutions. We cannot have too many scientific classes, or too many museums, and money applied to their endowment will surely tend to enrich the nation, as well as advance good learning and the broadest culture.” (11. I. 287.)

In this relation it is, of course, to be lamented that most of our medical colleges are dependent for their support upon the patronage of students. I hope, however, that I have succeeded in making it evident that even under these circumstances the managers of medical colleges will find it to their advantage to encourage and support what might be called a ‘working medical museum.’ That is, it need not be extensive, but one which contains *typical* forms, systematically arranged, useful for class and laboratory instruction.

I know that some of the ideas herein advanced with reference to museums in connection with medical colleges, partake somewhat of the nature of a new departure, but it must be borne in mind that as our knowledge increases in special lines of thought and experiment, we must have improved methods and better facilities for instruction. The advance made by science renders it imperative that more extended facilities should be offered to the medical student in the way of general and special training in order that he may keep pace with the rapid strides which are being made in all scientific matters. The methods of educating men for the practice of medicine that have been handed down to us from the past, may have been suited to the requirements of their time, but they are certainly not in accord with the intellectual necessities of the present age.

WORKS AND PAPERS REFERRED TO.

In this article I have followed the plan of making references which has been employed by Professor Burt G. Wilder, of Cornell University.

The following explanatory words are copied from him :

"References are made upon the following plan : the figure after the name of the author designates the number of the work upon the list. The last number denotes the *page*, and the middle number (in Roman letters), when there are three, indicates the volume. The order of enumeration has no significance."

1. FORBES, EDWARD.—On the Educational Uses of Museums. (Extract of a Lecture upon (*Vide* The Culture Demanded by Modern Life, edited by E. L. Youmans. New York, 1870.)
2. FLOWER, W. H.—The New Natural History Museum. *Nature*, vol. II., p. 61. May 26, 1870.
3. LIEBIG, JUSTUS VON.—The Development of Ideas in Physical Science. An address delivered before the Royal Academy of Sciences, in Munich, July 25th, 1866. (*Vide* The Culture Demanded by Modern Life.)
4. AGASSIZ, L.—Methods of Study in Natural History. Boston, 1873.
5. NOTES.—*Popular Science Monthly*. Vol. II., p. 371.
6. HUXLEY, THOMAS H.—On The Method of Studying Zoology. A lecture delivered before the science classes at the South Kensington Museum. (*Vide* The Culture Demanded by Modern Life. E. L. Youmans. New York, 1870.)
7. WILDER, BURT G.—Should Comparative Anatomy be Included in a Medical Course? Introductory lecture at the Medical School of Maine, February, 1877. (*Vide* reprint from the New York *Medical Journal*, October, 1877.)
8. WATTS, WILLIAM.—Natural History Museums. Letter to *Nature*, June 28, 1877.)
9. DAWKINS, W. BOYD.—The Need of Museum Reform. Letter to *Nature*, May 31, 1877.
10. PAPWORTH, J. W. & W.—Museums, Libraries and Picture Galleries, with Illustrations. London, 1853. (*Vide* Quotation from Bishop of Manchester, on title page.)
11. Report of the Trustees of the Museum of Comparative Zoology, Cambridge, together with the Report of the Director. Boston, 1867. 8vo., p. 37. (*Vide* Notice of in *American Naturalist*, vol. I., p. 387.)
12. DAWKINS, W. BOYD—The Value of Natural History Museums. Letter to *Nature*, June 7, 1877.
13. WILDER, BURT G.—A Museum Exchange. Presented at the Detroit Meeting of the American Association for the Advancement of Science. *Popular Science Monthly*, February, 1876.
14. MORSE, E. S.—Prof. Ward's Museum. *American Naturalist*, April, 1873.
15. SCLATER, P. L.—On Certain Principles to be Observed in the Establishment of a National Museum of Natural History. A paper read before Section D, at the Meeting of the British Association at Liverpool, on September 16, 1870, (*Vide* *Nature*, vol. III. p., 455.)
16. NATURE.—Vol. II., p. 138.
17. HUXLEY, THOMAS H.—On the Study of Biology. A lecture delivered

at the South Kensington Museum, on Saturday, December 16, 1876. *Vide Nature*, vol. XV., p. 219.

18. FLOWER, W. H.—Letter to *Nature*, in one of the June numbers for 1870.

19. NATURE.—Vol. IX., p. 397.

20. "E. H.," Museums. *Nature*, vol. XV., p. 276. January 25, 1877.

21. HUXLEY, THOMAS H.—On University Education. An address revised by the author, delivered at the formal opening of the Johns Hopkins University at Baltimore, September 12, 1876. (*Vide Nature*, vol. XIV., p. 546.)

22. FLOWER, W. H.—Museum Specimens for Teaching. Lecture at the Loan Collection of Scientific Apparatus, South Kensington, July 26, 1876. (*Vide Nature*, vol. XV., p. 144.)

23. YOUMANS, ELIZA A.—On the Educational Claims of Botany. (*Vide Appendix*, Second Book of Botany, p. 297.) New York, 1873.

24. YOUMANS, E. L.—Mental Discipline in Education. (*Vide Introduction*. The Culture Demanded by Modern Life.) New York, 1870.

25. EDITORIAL.—The Australian Museum. *Nature*, vol. X., p. 81. June 4, 1874.

26. EDITORIAL.—The Utilization of Natural History Museums for Scientific Instruction in Germany. *Nature*, vol. III., p. 441, April 6, 1871.

27. NOTE.—*Nature*, vol. XV., p. 344. February 15, 1877.

28. DAWKINS, W. BOYD.—The Organization of Natural History Museums. *Nature*, June 21, 1877, p. 137.

29. "J. P."—Museum Reform. *Nature*, July 5, 1877, p. 137.

30. Final Announcement of the Woodruff Scientific Expedition Around the World. Indianapolis Journal Co., 1877.

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32. COUES, ELLIOTT.—Field Ornithology. Salem, 1874.

33. BROWN, CAPTAIN THOMAS.—The Taxidermist's Manual; or, The Art of Collecting, Preparing, and Preserving Objects of Natural History. Nineteenth Edition, London.

34. VERRILL AND RICE, of Yale College. Preservation of Zoological Specimens. (*Vide notice of*, Popular Science Monthly, vol. IX., p. 254, June, 1876.)

35. GREENWOOD, MR.—On the Preservation of the Larger Animals for Anatomical Examination. (*Vide notice of in Nature*, vol. XII., p. 442, September 16, 1877.)

36. GANNAL, J. N.—Histoire des Embaumements, et de la Preparation des Pieces d' Anatomie Normale. Paris, 1838.

37. GREENHILL, THOMAS.—Art of Embalming. London, MDCCV.

38. KEEN, WILLIAM W.—Directions for the Preservation and Injection of Subjects for Dissection, and for making Anatomical Preparations. (*Vide Appendix*, Heath's Practical Anatomy. Philadelphia, 1870.)

39. TAYLOR, J. E.—Notes on Collecting and Preserving Natural History Objects. London, 1876.

40. DWIGHT, THOMAS.—On the Preservation of Anatomical Specimens. Read May 24, 1874, (at the Medical School of Maine.)

-
41. WYWODZOFF, DR.—On a Method of Embalming the Dead by the use of Thymol. Philadelphia, 1876. Printed for the Russian Commission.
42. MAYNARD, J. C.—The Naturalist's Guide. Boston, 1870.
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NEWS AND SUNDRIES.

PENNSYLVANIA has been reported by Dr. J. W. Gadsden, to be free from contagious pleuro-pneumonia.

RABIES SUCCESSFULLY TREATED.—N. Dumont, of Caen, France, is said to have successfully treated a case of rabies with hypodermic injections of pilocarpin.

PLEURO-PNEUMONIA IN MARYLAND.—Notwithstanding that the State authorities of Maryland report that State to be free from pleuro-pneumonia, the Treasury Cattle Commission finds the disease existing there in different herds.

ANNUAL MEETING.—The Society for the Promotion of Agricultural Science holds its third annual meeting at Montreal, Canada, August 21st and 22d. D. E. Salmon, D.V.M., reads a paper on "Our Animal Plagues, and the Means of Controlling them."

DEATH FROM ANTHRAX.—A lot of cattle died in Montreal the other day from the malignant disease called anthrax, contracted by feeding in a pasture where animals killed by the disorder were buried some time ago.—*American Cultivator*.

PASTEUR'S PROCESS ADOPTED.—Success in the inoculation of stock in France by the Pasteur process has induced the Russian and Italian Governments to send veterinary surgeons there to be initiated into the mysteries of vaccination.—*Prairie Farmer*.

ALARMING MORTALITY.—Reports received at the Bureau of Statistics indicate that there is an alarming mortality among cattle in southern Indiana this year, and it is supposed to be the result of last year's drought. In answer to the inquiries as to the cause, the reports all state that it is "starvation."—*The Farmers' Review*.

LIVE STOCK CENSUS.—A recent bulletin of the census office, relating to live stock in each of the States and Territories, shows that there were on farms in the United States, June 1, 1880, 10,357,981 horses; 1,812,932 mules; 993,970 oxen; 12,443,593 milch cows; 22,488,590 other cattle; 35,191,656 sheep and 46,683,954 swine.

CATTLE DISEASE IN CANADA.—In consequence of the cattle disease, which has for some time past existed at Picu, N. S., the Canadian Minister of Agriculture is empowered to employ a veterinary surgeon as inspector, with power to declare any place where the disease is found, an infected district, and to order cattle slaughtered. No person but he, or other person authorized, will be permitted to remove any cattle from the infected district. —*Farmers' Review*.

INVITATION.—Such is the prominence attained by America in the production of cattle and horses that the Committee of the Internal Exhibition of Animals connected with agriculture, at Hamburg, in 1883, extend a cordial invitation to our countrymen to take part in and to visit that exhibition. The opportunity of international comparison and competition is well worthy the attention of our famous stock breeders, and we bespeak a favorable representation of American stock at this far-famed exhibition.—*American Cultivator*.

MULE DISEASE.—A very fatal scourge has prevailed in this section of Louisiana for some time, known as Spanish leprosy or farcy, which has killed a large number of mules. It seems particularly destructive to these valuable animals, and some planters have lost nearly every mule on their places. This visitation is particularly unfortunate at this season of the year, when farmers need every work-animal they can use. Some persons claim that it can be cured, but the most of the farmers consider it beyond remedy, and it does its work in a very short time.—*Nachitoches Vindicator*.

SUCCESSFUL EXTIRPATION OF THE SPLEEN.—The patient, a man aged forty-four, was injured by a brick striking the left hypo-

chondrium ten years before. There resulted a cystic swelling of the spleen, which in late years grew rapidly. It was intended at first simply to remove the cyst, which was found to contain a yellowish fluid and to be separated from the spleen pulp by a membrane. The bleeding was so great that this could not be done, however, and the whole organ was removed. Primary healing followed, and the man, after about two months' illness, became well. Crede concludes:

First.—That the spleen can be extirpated without injury to health, except a temporary anæmia.

Second.—That its extirpation produces a marked temporary anæmia, with increase of white corpuscles as well as a decrease of red.

Third.—That there is at first a temporary swelling of the thyroid gland, probably vicarious. The lymphatics and bones were not affected, so far as could be seen.

Fourth.—All these symptoms disappeared in six months.

In the discussion it was shown that there had been fourteen extirpations of the spleen for leucæmic swelling, all fatal; and three extirpations for cystic enlargement, all with favorable results—*Medical Record*.

PHTHISIS BY INHALATION.—The experiments of Tappeiner, in 1877, proved that dogs are rendered tuberculous by treating them with phthisical sputa administered regularly daily, by means of an atomizer, during a period of ten to twenty days. The same experimenter has recently completed similar administrations upon dogs with the pus taken from a scrofulous subject having suppurating glands. The results were negative, the lungs of the canines being found free from tubercles—a fact indicating the non-identity of scrofulosis and tuberculosis. Dr. T. also made the test of the sputum of chronic bronchitis; this was also found to be non-infecting.—*Proceedings of the Medical Society of the County of Kings*.

FATAL DISEASE IN PENNSYLVANIA.—A disease very fatal to cattle is prevailing in Berks County, Pa. The infected district is now quarantined.—*Country Gentleman*.

A SUGGESTION.—President Chadbourne, of New York, suggests that “each agricultural society select the best young farmer within its bounds and give him an education at an agricultural college.” We fear this suggestion will remain unnoticed, if we consider that veterinary colleges have offered free scholarship to agricultural societies, and that so few have taken advantage of it.

AMYL NITRATE.—According to an Italian physician amyl nitrate is not an antidote to chloroform, as he found it from practical tests upon rabbits.

QUARANTINE FOR IMPORTED CATTLE.—The appropriation for establishing and maintaining quarantine stations at American ports for imported cattle, as asked for by the Short-horn Convention in this city, in June last, has gone through (a part of the “Sundry Civil Appropriation Bill,”) and the sum of \$50,000 is now at the disposal of the Treasury Department for that purpose.—*Breeders' Gazette*.

THE Ethnological Museum, organized at the “Trocadero,” in Paris, possesses 44,000 specimens.

NEW JERSEY BIRDS.—Some strange disease is killing birds in different parts of New Jersey. They are found dead upon lawns and roads, and each with a hard lump or swelling in the throat. Robins, wrens, sparrows and thrushes are all affected alike.—*American Cultivator*.

FRENCH HORSES.—WHAT THE ENGLISH SAY.—*The British Quarterly Journal of Agriculture* says: “The horses of Normandy are a capital race for hard work and scanty fare. Have never elsewhere seen such horses at the collar. Under the diligence, post-carriage, or cumbrous cabriolet, or on the farm, they are enduring and energetic beyond description. With their necks cut to the bone they flinch not. They keep their condition when other horses would die of neglect or hard treatment.” The superiority of French stallions for crossing on the common mares of America is established. This fact has caused the development of the largest importing and breeding establishment in the world,

M. W. Dunham, of Wayne, Ill., having imported and bred nearly 1,000, and has now on hand some 400.—*Country Gentleman*.

GLANDERS IN THE HUMAN SUBJECT.—In a recent number of the *St. Petersb. Med. Wochenschrift*, Dr. Zdekauer describes a case where the clinical symptoms of glanders were observed, although no distinct history of infection could be obtained. A lady, aged 46, and in very good health, was attacked at the beginning of January, with swelling of several large joints, and high fever. At the end of three weeks, the temperature continued over 104°, with no eruption, slight enlargement of the spleen, and very feeble pulse. Dr. Zdekauer diagnosed "latent blood-poisoning complicated by rheumatic polyarthrititis." On January 26th, the face became œdematous, with pustules as large as a bean; there was great lividity of the lower eyelids, no glandular swellings, and a typhoid condition. On the next day, the face was enormously swollen, and large grayish swellings, with dilated lymphatic vessels between them, covered the left lids, the nose, and the mouth. Several pustules, of the size of cherries, with livid bases, were found on the arm; the patient became comatose, and died in the evening.—*The Medical Gazette*.

A STRANGE DISEASE is reported as affecting cattle in Alabama, North Carolina, Virginia, West Virginia, Ohio, Pennsylvania and New York. This disease, from all accounts, is Texas fever. It is well known to the profession. It is rapidly fatal and so far treatment seems ineffectual. There is some consolation in the fact that the disease is not communicable from one northern animal to another, and also that it can never become a permanent pest, since a sharp frost destroys the germs of the disease.

THE FOURTH INTERNATIONAL CONGRESS OF HYGIENE, which is to meet at Geneva, September 4th to 9th next, will discuss the following topics: "State and International Hygiene," "Prophylaxis of Epidemic Diseases and Sanitary Police," "Social and Medical Statistics," "Relation of Hygiene to Chemistry, Physics, and Mechanics," "Hygiene of Children," "School Hygiene," "Private and Public and Veterinary Hygiene."—*Medical Record*.

CATTLE SHIPPERS TO BE HEARD.—Such is the importance of the export trade to American cattle shippers, that Emery A. Storrs, the eminent Chicago lawyer, has sailed for Europe, employed as a representative of those interested in the cattle business, and he will endeavor to overthrow or mitigate the prejudice of European regulations against American beef and pork and the cattle exporting interests. Mr. Storrs has strong letters from President Arthur, Secretary Freylinghuysen and Gen. Grant. It is to be hoped that his mission may prove successful.—*American Cultivator*.

EXCHANGES, ETC., RECEIVED.

HOME.—N. Y. Times, Prairie Farmer, Breeders' Gazette, Medical Record, Medical and Surgical Reporter, American Cultivator, Ohio Farmer, Turf, Field and Farm, National Live Stock Journal, Medical Herald, Rural New Yorker.

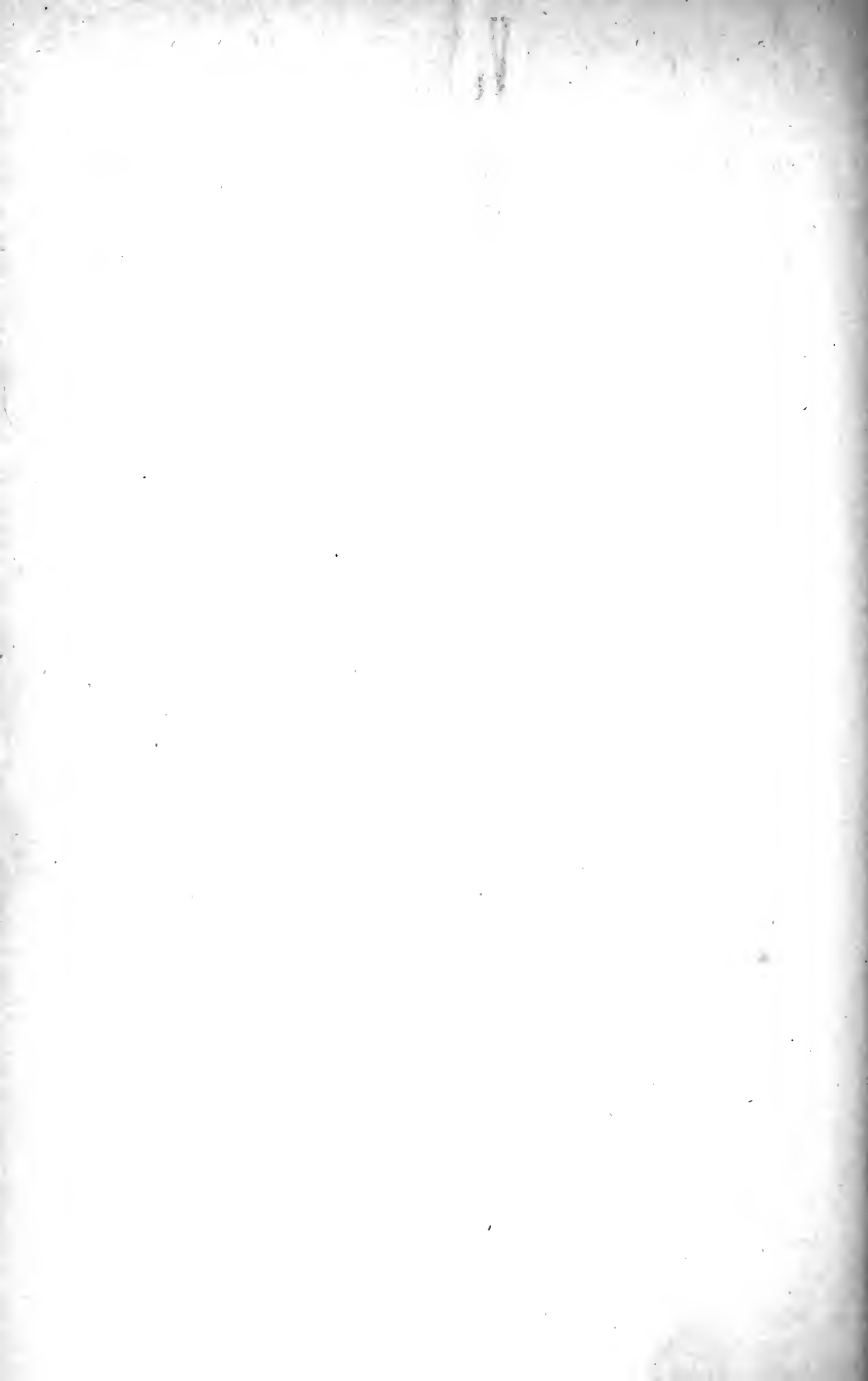
FOREIGN.—Archiv für Wissenschaftliche und Prachtische Thierheilkunde, Revue für Thierheilkunde und Thierzucht, Clinica Veterinaria, Recueil de Médecine Veterinaire, Archives Veterinaires, Presse Veterinaire, Annales de Belgique, Veterinary Journal, Veterinarian, Australian Veterinary Journal.

PAMPHLETS.—Annual Report of the Veterinary Department of the Privy Council Office, 1881; Acide Phenique et ses composés.

CATALOGUES.—Montreal Veterinary College.

JOURNALS.—Farm Journal, American Journal of Education, Southern Industries, Turf, Rod and Gun, Home Farm, Western Farm Journal, Iowa Farmer, &c., &c.

COMMUNICATIONS.—Dr. J. L. Suesserott, F. S. Billings, Prof. Lanzelotti Buonsanti, G. S. Agersborg, A. A. Holcombe, W. B. Rowland, T. B. Rogers, J. C. Corlies, S. Wiltshire, J. C. Meyer, Jr., N. Townshend, M. D.



AMERICAN VETERINARY REVIEW,

OCTOBER, 1882.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

BY A. ZUNDEL.

(Continued from page 208.)

LAMINITIS.

SYNONYM: *Behe, Verschlag, Hufentzündung*, German: *Fourbure, Fourbature*, French; *Rifondimento*, Italian; *Aguadura*, Spanish.

By this name is understood the bloody congestions of the keratogenous apparatus of ungulated animals. The increase of the circulating fluid produces a swelling of the living tissues of the foot; but these being enclosed in a box of so hard, resisting a material, a painful pressure results, which becomes specially common and serious in horses and other solipeds. It has also been observed in bovines, though it is then less frequent and serious. It has also been seen in sheep, in goats and in swine. It may, in fact, occur in all ungulated animals. Dogs, even, are not exempt from its attacks.

The simple bloody congestion, more or less inflammatory, of the keratogenous apparatus of the horse, is sometimes called *acute laminitis* and *acute founder*. The disease may pass off by resolution, leaving no traces of its occurrence, but more commonly it becomes complicated with some lesion of more important and serious a character, as hemorrhage, suppuration, inflammatory

exudations, and especially of a hypersecretion of the horny substances, in which case it becomes *chronic* laminitis or founder; an affection which gives rise to alterations of a peculiar nature, and leads to certain changes in the form and character of the hoof. We do not agree to the divisions admitted by several authors, into *traumatic laminitis*, *rheumatismal laminitis*, and *metastatic laminitis*.

I. *Symptoms*.—Laminitis, in most instances, is preceded by certain general symptoms, such as are premonitory of the invasions of ordinary inflammatory diseases, but of an uncertain significance. There is dullness, general insensibility, muscular tremblings, and stiffness of the loins. The respiration is accelerated, the pulse febrile, the mucous membranes injected, the mouth dry, the fœcal discharges dry and coated, the urine scanty; and perhaps anorexia is present. Rodet, who held that laminitis is more a secondary than primitive affection, and that it is simply an inflammatory anaisothermical fever which had localized itself, was obliged to acknowledge that this fever has nothing characteristic, and that it is always followed by laminitis.

It is certain, however, that but a short time elapses—from several hours to one or two days—after the originating cause has become active, before the bloody congestion of the reticular tissues and the peculiar phenomena belonging to the disease become manifest. It is only when the capillary circulation of the foot has considerably increased, and when the rigidity of the structure prevents the swelling of the podophyllous tissue, that laminitis truly exists.

Laminitis in the horse has the following principal symptoms: Considerable heat of the entire foot, extreme sensibility with intense pain, increasing rapidly, and obliging the animal to rest upon the sound legs, in order to relieve the affected ones; difficulty and uncertainty in walking; and sometimes a peculiar trembling of the muscles of the patellar face of the femur, and of those of the extensors of the fore arm, which fill the triangular space formed by the scapula and the humerus. The physiognomy always indicates intense suffering. The pulse is hard, the respiration increased, and the skin hot, and in places moistened by a

copious perspiration. These symptoms vary with the legs which are affected, whether the disease is located in the fore or hind feet exclusively, or in all four together. As Mr. Bouley says, it is a peculiarity of this affection that it may remain localized in the feet of one patient, either forward or behind, or may at once attack the four extremities, and that it seldom attacks the limbs on one side only, to the exclusion of the feet of the opposite side, *i. e.*, it may be laterally biped, affecting either both the fore or both the hind feet, but not often occurring otherwise. Sometimes, however, the disease is more marked in one leg than in the other of one biped. It is generally only after some traumatic lesion, or other local influence, that laminitis occurs in one foot only.

When laminitis affects the two anterior feet, the animal carries its extremities forward, and the hind feet are brought well under the centre of gravity. The standing of the animal is altered, the walking difficult and painful, and the resting of the feet on the ground is done with hesitation and fear. The feet are carried forward, because the pressure takes place on the frog and on the heels; if it should occur as in the healthy and normal condition, upon the entire inferior circumference of the foot, there would be pressure upon all the living tissues, which are gorged with blood, tumefied and painful, and this pressure would greatly increase the sufferings of the patient. It is, then, to relieve himself, and to avoid the intensity of the pain, that the animal instinctively changes its mode of resting on the ground. In placing the heels down, the weight is borne only upon a follicular, fatty tissue; from there it spreads along the side of the coronet to the fetlock, and thus upon all the other portions of the leg, and in this way the foot becomes greatly relieved during the action of resting. If, however, the fore legs only were carried forward, the effect would be equivalent to lengthening the body of the animal, and he would be unable to carry on the action of walking. To allow the fore feet to be moved, it is necessary that the body be carried forward by the hind legs and brought closer under the center of gravity, a position which contributes also to the relief of the animal while at rest.

The more painful and diseased the feet become, the more the animal fears the impingement of the ground. Thus, so to speak, he sounds the ground before putting the foot down, and for this reason the walking becomes slow, stiff and difficult, and the noise of the contact of the foot louder than that of the healthy legs. Sometimes the animal proceeds only by a series of jumps, or a kind of rearing, while backing is especially difficult.

The hoofs of the foundered feet give to the hand, when feeling them, a sensation of heat greater than that in the physiological condition; a sensation which can be more readily detected by a comparison of the fore and hind feet simultaneously examined. The pains in the diseased feet are rendered more manifest, also, by percussion upon the hoof with the hammer, when each blow, however light, is followed by a motion of the animal in suddenly withdrawing his foot on account of the pain experienced. The lateral arteries of the fetlock, in the foundered legs, beat stronger than in health, and can be readily felt by the fingers. The feet cannot be raised without great effort, and when raised, the animal stands only with great difficulty, and makes struggling attempts to relieve himself and resume its natural mode of standing on four legs.

When laminitis affects only the fore feet, the animal will sometimes remain standing for a length of time together; he may retain this attitude for several days, without any displacement of his body; still he is observed moving *surplace*, from side to side, especially on his fore legs, relieving one foot for a moment to give the same comfort immediately afterwards to the other. But when, exhausted by fatigue and pain, the foundered horse lies down, it is very difficult to get him on his feet again. He continues in the decubital position, lying mostly flat upon his side, the fore legs in constant motion, and soon complicates his diseased condition by the addition of bed sores upon the prominent parts of his body.

The attitude of the animal is very different when the hind feet are affected; then both the anterior and posterior bipeds are brought close to each other, the feet of the hind legs being carried forward under the abdomen, so that the rest may take

place upon the heels; and the anterior ones are carried backwards, and nearer to the center of gravity, to assist the function of the hinder extremities in sustaining the weight of the body. In this case, the animal is constantly in side motion, on account of the pain he endures. Walking is still more difficult, and seems to take place as if the animal was treading on sharp needles, as, the more the anterior biped is engaged under the body, the more also those legs are loaded with the animal's weight, and the more difficult is their movement. But the anterior legs, contrary to their ordinary function (not being adapted to the support of an overshare of the body) sustaining now a great part of its mass, and moreover, compelled to assist in the act of propulsion, necessarily and inevitably become easily fatigued, and too often in their turn become likewise affected. Animals suffering with posterior laminitis are found occupying the standing position less frequently than those whose fore feet are affected. Their unsteady equilibrium, consequent on their mode of standing, tires them more quickly, and compels them to lie down, and once on the ground, it is again more difficult to make them rise. They may do so readily with the fore legs, but the posterior extremities do not always respond to the call.

The attitude of animals suffering with laminitis of all the four feet, is the same as of those which are affected in the fore feet only. All four feet are carried in advance of their plumb line, the anterior forward, the posterior well under the center of gravity. Sometimes the horse has all his feet somewhat apart, in order to carry the principal part of the weight on the inner side of the foot. The standing posture being painful to either foot, the animal lies down most of the time. Locomotion is very difficult and staggering, and the animal can only be induced to move by severe punishment, and even that cruel resort sometimes fails to effect it. If the animal is made to walk, he does it with the greatest difficulty, by reason of the increase of his sufferings, brought on by the displacement. His legs, stiff and trembling, are raised in a convulsive manner, and brought back to the ground only with the greatest hesitation, and upon the heels; the constant motion of the lips of the animal being well characteristic of his sufferings.

In the ox, laminitis is more frequent in the hind than in the fore feet. It is, however, more serious in the latter, the inner being more affected than the outer toe. The foundered ox walks with hesitation, and takes advantage of every opportunity to lie down. When standing, his back is arched, the feet closed together, the hind feet resting on the heels, the fore legs on the points of the toes. The fever is severe, sometimes attended with loss of appetite and of rumination. If the disease continues long, the cattle will die. The abdomen is stuck up and the animal loses flesh very rapidly, indicating a serious condition, as the disease is principally found in fat animals, which are obliged to make forced marches to be delivered at their markets.

(To be continued.)

ANTHRAX IN NATAL.

BY S. WILTSHIRE, *Colonial Veterinary Surgeon.*

(REPORT TO THE COLONIAL SECRETARY.)

(Continued from page 220.)

CONTAGION.

As the germs of anthrax exist outside the system, chiefly, if not entirely, as spores which retain their vitality for long periods—especially when dried—we can understand the danger to healthy animals grazing over or frequenting the places where diseased ones have been, and particularly over spots where they have been buried.

Bearing upon this subject, my friend, Mr. J. W. Winter, M.R.C.V.S., has favored me with a valuable note—"I believe it is a proved fact that pastures upon which diseased stock have fed and died are innocuous during the first season, but most fatal when the grass again springs. This would go to prove that it took some time for the generation and multiplication of the germs of disease before they could affect other animals feeding upon the grass of the same locality."

It appears to be necessary that the mucous membrane or the skin should be abraded for the disease to be contracted—except

by direct inoculation; hence we see the advisability of avoiding those places, and also stables, kraals, etc., where the sick have been. Men have often been poisoned by eating the meat of affected animals, or by handling the carcasses. Kafirs, I am told, have had bad sores after handling, or being brought in contact with, the blood and *débris* of bucks which have died of this disease; and many have died, or been sick after eating beef affected with redwater; hence the necessity for a rigid inspection of all meat offered for sale. The risk of contagion at the watering places along the roads will be recognized, as cattle often die near them, and, in such a hilly country as this, the remains, with the germs, are readily washed into them by the heavy rains. The spread of redwater is sufficient evidence of the vitality of its organism, and the facility with which it is conveyed from one place to the other, and its distribution through the media of the excretions and *débris* of cattle.

I do not think stabled horses can become affected when fed entirely on dry food; but when supplied with cut grass they are by no means safe, though the risk is not so great as to those which graze, as the latter do so in dangerous places, and bite close to the earth, while Kafirs cut longer grass and not so close to the ground as horses graze.

TREATMENT.

The treatment of animals affected with any form of this disease is somewhat unsatisfactory, as all will testify who have had experience.

As I pointed out in former reports, the proper agents to introduce into the system are antiseptics, that is, agents which counteract the poison and arrest decomposition of tissues; followed up by those which will restore the blood to its physiological condition.

For this purpose I have found the best results in both horses and cattle from the sulphite and hyposulphite of soda in 2-oz. doses, and the chlorate of potass in $\frac{1}{2}$ -oz. doses, combined sometimes with opium or digitalis, at others with an aperient; Epsom salts for cattle, and aloes for the horse, followed up during recovery by tonics and generous diet.

I have often been told by farmers and others that the treatment I recommended for redwater in 1877 has proved beneficial; so also that which I suggested for horse-sickness in 1878, if adopted early. This coincides with my own experience, notwithstanding the adverse criticism of those who never tried it, or who waited till their animals were beyond recovery before they did.

Excellent results have been obtained from the administration of turpentine, carbolic acid, carbonate of ammonia, salicylic acid, iodine, and other agents, introduced into the system in various ways; but, as the means adopted are hardly practicable here, where many of the animals—especially cattle—are so intractable, I cannot recommend their trial unless carried out under the direction of properly qualified veterinarians. In support of this, I may point out that the means of prevention are so simple, and have proved so effective, that I feel bound to urge a consideration of them, with a view to their adoption.

PREVENTION.

Bearing in mind that the sole cause of this disease is a solid particle which can only enter the system in one of three ways, viz., by the food, water, or inoculation, we must direct our attention to the surest means of keeping our pastures and streams free from infection, and to the most practicable measures for disposing of the carcasses and *debris* of animals, to the isolation of the sick, and to preventive inoculation.

The importance of preserving our pastures will be seen when it is clearly understood and recognized that the poison is thrown off in the fæces, urine and other excretions of the body, and from dead animals, so contaminating the veldt and water, by which means the outspan places become hotbeds of redwater, etc.

I have long urged that sick cattle, etc., should not be allowed to travel along the roads, and that all dead animals should be buried—as far as practicable in enclosed spaces, where animals are not permitted to feed—which measures, as well as the establishment of places for isolating the sick at certain points along the road, should, I think, receive the earnest attention of the Legislature.

On farms, measures should be adopted to isolate sick animals of every kind, so that contagious matter may be brought under the influence of disinfecting agents.

Various kinds of drugs with antiseptic properties are of value, but in view of the difficulty of administration and other practical objections, they are not likely to be used to any extent.

Fortunately, however, the patient and persistent investigations of scientific men have led to the discovery of means which promise an easy and effectual solution of the difficulties, if rightly and systematically applied. To Professors Pasteur and Greenfield, Dr. Buchner, and others, we are indebted for the discovery of modes of modifying the virulence of the contagium, by which means the disease can be produced in a mild form and animals rendered insusceptible to it for a time, in the same way as vaccination for small-pox, and inoculation for lung sickness.

The value of the protection conferred has been established by the most severe tests and convincing proofs. The benefit of such a course will be recognized by those who know how horses which have recovered from horse-sickness in the Transvaal can live in places that would be certain death to those unprotected.

Until this question is dealt with properly under a comprehensive scheme, I can only recommend that during the prevalence of disease all animals should be kept on the highest pastures available; that places where the dead have laid and sickness has prevailed should be avoided as much as possible. I consider that stabled horses, when fed entirely on dry food, are not liable to horse-sickness; but that they are equally susceptible if given grass or other matter containing the germs of the disease.

In the vicinity of towns the risk of turning horses out to graze is great, on account of the extent to which the veldt is contaminated; hence the importance of having animals buried in enclosed spaces, under the supervision of or by the local authorities, will be apparent.

In conclusion, I beg to point out that the investigation of disease is a most difficult matter, requiring prolonged and careful research, and the knowledge embodied in this paper is the result of the labors of many careful observers, who have noted and re-

corded the facts presented to their notice for the benefit of their fellow-workers. It has fallen to my lot to identify certain forms of the disease under consideration, and define to the best of my ability the causes giving rise to them.

Had my conclusions been illogical or erroneous, other laborers in the same field would have been ready to point out my mistakes; but their general correctness having been established, it now remains for those whose interests are associated with the pastoral, agricultural, and transport industries of this country, to determine whether, and to what extent, they will adopt the means of prevention which are calculated to protect their stock and prove of great public benefit. In view of the importance of this subject, no time should be lost in practically applying what has proved so successful in other countries, and by that means showing an appreciation of the science and progress of the age in which we live.

AN INQUIRY

INTO THE ETIOLOGY AND PATHOLOGY OF THE VENEREAL DISEASES OF MAN AND OF THE LOWER ANIMALS.

BY CHARLES F. RING, M.D.

(Continued from page 226.)

Professor Coleman, who was an authority of his time, and who argued the non-contagiousness of glanders, writes: "The malady (glanders) which broke out among the men engaged in the Walcheren expedition, attacked almost all of them; hence it was considered to be a contagious disease. Afterwards, however, it proved not to be, nor was this assumption required to explain its endemic character, for they all (if the expression may be allowed) ate it, they all drank it, and they all breathed it." (Quoted by Percival, *ibid*, vol. 35.)

This rapid imparting of the disease from one individual to another has even taken place in private families. "For example, where one has eaten from the same dish with a diseased individual, or where an entire family, consisting of man, wife and

four children, have been rapidly attacked one after another with the malady," glanders. (Bollinger, *ibid*, article Glanders.)

Now, it would be presumption merely were we to attempt to describe how this *glandered meat* was served to the soldiers during the famine of which we have been speaking, or that it even constituted a part of their diet at all, for we have nowhere read of anything that would justify us in making a statement like this; yet one thing, we think, will be admitted by all, viz: that we have theoretically, at least, accounted in the first place for the sudden outbreak of the epidemic in question, and, secondly, for its singular and destructive nature, and it now only remains to be determined, from what follows, whether this plague could have been produced by glanders conveyed from the horse to man after the manner indicated, or in any other manner, for that matter, the relation of the diseases *only* being the point in question.

What glanders is, and what are its effects on man and solipeds will next occupy our attention, but it may be well to state in the beginning that the subject is considered at such length (and necessarily so for its proper understanding) in the works we have quoted from, that we must refer those who desire more minute information to this source, and content ourselves with the more salient points of description.

GLANDERS IN HORSES.

"The most formidable of all the diseases to which the horse is subject," says Youatt (On the Horse, p. 121) "is glanders. It was described by writers fifteen hundred years ago, and it was then and is now not only a loathsome but an incurable disease."

Gamgee writes (Reynolds' System of Medicine, vol. I, p. 183) "This disease appears to affect the horse in all parts of the world, although perhaps it is modified to a certain extent by climatic and other agencies. In the deserts of Arabia it is said not to possess the dreadful characteristics which distinguish it elsewhere, and is a comparatively rare disease. It may occur under four forms, as 1st, chronic glanders; 2d, acute glanders; 3d, chronic farcy; 4th, acute farcy. Chronic glanders is the most common form affecting the horse. It is propagated by contagion and in-

fection (?) It never occurs as a termination of acute glanders. Its period of incubation is uncertain, and has been stated to vary from a few days to a year."

A description of the chancre of glanders reads very much like that of syphilis, to wit: "The chancre of acute glanders may sometimes cicatrize, but the mucous membrane is never regenerated at the spot it occupied, being replaced by a very dense white tissue, thicker than the membrane for which it is substituted, and it consequently stands above the surrounding level; the cicatrix is composed of fibres which radiate from the centre towards the circumference in a stellate fashion. The presence of this indelible cicatrix always betrays the loss of substance that has taken place in the membrane."

Again, "the chancre is sharply cut in the membrane as if it had been stamped out by a punch; this is surrounded by a very narrow indurated border, and has a *hard resisting base*, the bottom being gray and unhealthy looking; the characters of the borders and centre being due to the continual production of new cells." (Fleming, *ibid*, p. 510.) As a knowledge of glanders in the human subject is more important to the present discussion, we will proceed at once to a consideration of it.

GLANDERS IN THE HUMAN SUBJECT.

"No connection had been traced between the terrible diseases in the lower animals which have been briefly described and an affection which then, as now, must have occasionally affected those who had charge of horses suffering from glanders and farcy, until the year 1810, when Waldinger drew attention to the fact that special precautions ought to be adopted in the dissection of horses affected with glanders and farcy, inasmuch as the direst consequences, even death, might result from the inoculation of the purulent matter. The accuracy of the statements of Waldinger was supported by the publication, in 1812, of a paper by a French military surgeon, Lorin, who, under the title "*Observations sur la communication du farcin aux Hommes*," described the case of a veterinary surgeon who, having accidentally pricked himself whilst operating upon a glandered horse, suffered in con-

sequence from inflammation of the hand. The statements of Waldinger do not, however, entitle him to be considered the first person who pointed out that glanders is communicable from the lower animals to man, for although he stated that dangerous consequences might result from the inoculation of the purulent matter of glanders and farcy, he did not state that the affection induced in man in any way resembled that of the horse." (Gamgee, *ibid*, p. 186.)

"The stage of invasion, or the premonitory stage, commences with a feeling of indisposition or depression, and with peculiar wandering pains, followed by febrile excitement, shivering, great heat and uneasiness; soon afterwards there is pain affecting the muscles, simulating rheumatism and often mistaken for it. The pain generally attacks the extremities, and more especially the bend of the groin, the axillæ and neck, where upon careful and minute examination swellings may be detected, which are sometimes diffused and sometimes circumscribed, indicating glandular complication; these may disappear suddenly or be altogether absent. The fever soon assumes a more inflammatory character, the pulse being full 92-96, the skin is hot and dry, the face flushed, and the head heavy; there is want of sleep, the tongue is foul, the urine scanty and high-colored. Sooner or later, the second stage, that of eruption, takes place and at once develops the specific character of the disease. In acute cases this appears almost at once soon after the invasion, but in chronic cases there may be an interval of weeks. The eruption consists of a crop of pustules, remarkably hard, resembling the smallpox, and attacking the skin like an exanthem; it is said to be specific and pathognomous of the disease." (Holmes' System of Surgery, Vol. I, p. 701.)

Two interesting plates accompanying this description illustrate this eruption well. Immediately on seeing it one is reminded of the vulgar name "big pox," which was at various times applied to the epidemic.

Also in these same plates are shown subcutaneous tumors, which remind one very much of descriptions of syphilitic gummatæ; they are possibly the so-called "farcy sores," or "buds."

Gamgee writes: "The disease is usually ushered in by feelings of lassitude, headache, and rigors, frequency of the pulse, and often by vomiting and diarrhœa. Articular and muscular pains occur from an early period of the disease, and increase during its progress. The limbs and body become the seat of subcutaneous abscesses, which are frequently found on the face and near the articulations. A remarkable pustular eruption generally appears on the surface of the body, being specially found on the cheeks, arms and thighs." (*ibid*, p. 189.)

Let us review here, by way of comparison, a few of the symptoms of the "epidemic" which we have already considered.

"The prevailing epidemic," writes Petrus Pintar, "is characterized by a variety of symptoms, more particularly by keen and excessively violent pains. Some do not have any pains, in the place of which they are attacked by *pustules* of various shapes and sizes, being very numerous on some individuals, and on others more scanty. Sometimes the pustules break out only in the face or on the head, while the other parts of the body remain free; in other cases they are only seen on the abdomen; most frequently they break out on the thighs and legs, but may likewise spread over the whole body. Grenbeck states that the disease commenced with langour and debility of the limbs, after which the pustules broke out with intense fever; he adds, that whenever these pustules or tumors burst open they sometimes became converted into frightful phagadenic sores.

"The pains accompanying this eruption are sometimes so violent that the patients are deprived of their sleep for forty, sixty, and even a hundred nights together, after which the pains likewise assail the head. Others experience in their shoulders an indescribable feeling of stinging and weight; others again, experience the same pain in the elbows, knees, even in all the limbs and joints at the same time, so that they are unable either to walk or to stand, and have to abandon every kind of work."

But to return to glanders in the human subject. "Among the less frequent concomitants of the disease may be also mentioned specific tubercles and abscesses of the *glans penis*, testicles

(sarcoele, mallosa, verichon), and *kidneys*, specific papules of the choroid coat of the eye, and, furthermore, inflammation of the parotid gland.

In the nose the cartilages become exposed and necrosed, the septum, vomer and palate bones are disorganized. In the pharynx, larynx and trachea are frequently found papules and ulcerations. The growths and ulcerations in the larynx may lead to œdema of the glottes. The *cartilages* and *bones* are often involved secondarily in the destructive action of the adjacent specific affections, the ulcers and abscesses. In rarer instances the bones and periosteum are the primary seat of the specific growths and inflammatory process. In cases running a *chronic* course, with moderate ulceration of the nose and larynx, glanders may acquire a very strong resemblance to certain forms of syphilis.

“The contiguous parts become involved in the diseased process; for instance, if the disease is situated upon the head, the bones of the skull and face and more particularly the frontal bone are all affected, becoming necrosed; while even upon the inner surface of the skull, between the bone and the *dura mater*, purulent collections may be formed (*pachymeningitis externa*). In other cases tubercles may appear in the periosteum of the skull, in the *dura mater*, and even in the *plexus charoides*. In the *human subject*, just as in the horse, the *nasal affection often fails to appear until the latter stage of the illness*, which affords convincing evidence that in both species these symptoms cannot be regarded otherwise than pathognomonic.

Of the remaining tissues of the body, the *muscles* form unquestionably the most frequent seat of specific changes. According to Küttner, the specific nodules are mostly situated in the biceps, *the flexors of the forearm*, the rectus and the pectoratis, and finally at the point of insertion of the deltoid.” (Ziemssen’s *Cyclopædia*, Vol. III, article Glanders.)

By way of comparison again, in later stages of these diseases, let us observe first what effect syphilis has on the muscular tissues, and, second, what affinities they have in a general way in common.

“The syphilitic disease may locate itself in the most various

muscles. The diffuse form has been found more especially in *the flexors of the upper extremities*, while the gummy tumors occur in the glutens, trapezius, sterno—cleido—mastoidens, etc. (Bäumler, *ibid*, p. 179.)

By referring more minutely to the pathology of these affections, it will be seen that the bones, special and otherwise, fall a prey equally to the two poisons, to wit: the bones of the skull, palate, vomer and nasal; the larynx, pharynx and trachea; eye, urinary organs and testicles; lungs, soft palate and tonsils; mouth, fauces and mucous membranes; ligaments, cartilages and joints; liver, spleen and nervous system; muscles, skin and lymphatic glands; and many other points of comparison too tedious to enter into here.

If the reader be not already convinced of the striking analogy between these two diseases, it would be a waste of time to endeavor to make this clearer when, after all, experiment, and not mere fancy, will determine the value of our views.

In regard to the so-called volatile nature of that epidemic, so strongly insisted upon by contemporary writers, and which we are not unconditionally inclined to dispute, the following may not be amiss: "Under the second class of modes of infection," continues Bollinger, "occurring without known local inoculation, may be observed the case of individuals who groom and have the care of glandered horses, and who sleep in a stall with the diseased animals, without in any way coming in contact with them, or who become infected by sleeping on straw upon which, shortly before, glandered horses have been standing."

Observed how easily, in this manner, glanders may be contracted without known local inoculation with diseased products, it will not be at all wondered at that soldiers (let us imagine) in a state of famine and degradation, compelled, as they are, to mess and sleep together, could impart to one another a disease like this, with the most frightful and alarming rapidity, thus probably giving rise to the belief that the epidemic could be communicated alone by the air. Even at this date it is not altogether a settled point that this cannot be done; most writers admit its possibility, but not its probability. Now, if glanders of the horse has

existed from the remotest antiquity, as we are told that it has, it may be asked why it never, prior to the epidemic we have been discussing, gave rise to a *syphilitic* disease. The only answer to such a question can be this, viz.: That while glanders has undoubtedly been communicated from the horse to man at different times since its existence, yet it never before was transmitted to a sufficiently large number to enable it through its passage from one individual to another to become milder and milder, and finally to limit its infecting centre to the sexual organs, and thus undoubtedly to become a *venereal disease*.

As vaccine can be inoculated on any portion of the body, and which generally becomes milder from a scab of the third or fourth generation, so we believe glanders—usually at first so fatal—became less quickly so after its passage through a number of individuals; and hence resulted, after long time, in the so-called syphilitic disease.

We are told that “for many years after its outbreak” (referring to the epidemic) “sexual intercourse does not appear to have been suspected as the mode of its propagation; the primary affections of the sexual organs were not noticed as constant symptoms.”

Further, that “if this plague has been, strictly speaking, a venereal disease, the sexual organs ought to have shown the first symptoms of a recent infection, whereas, as Grenbeck justly observes, they only became affected incidentally, in consequence of the general spreading of the pustules over the surface of the body.” Jahr writes as to its cause, “the external circumstances favorable to the production of a pathological event as great as it was incredible—such, for instance, as the meeting of large hosts from every country, encamped for a long time in a climate to which they were unused, and sustained by unwholesome and unwonted supplies of nourishment; considering, moreover, the atmospheric influences, the noxious emanations from thousands of cadavers, excess and licentiousness of every kind; and, finally, the wild passions let loose by the war, the non event of such a plague as the modern syphilis would have seemed a source of astonishment, rather than that its advent should excite our wonder.” (*ibid*, p. 291.)

Glanders, where it attacks only a few persons at a time, generally kills its victims, so that it rarely has much of an opportunity to spread or to degenerate—which requires time—into a disease like the one which resulted from the epidemic.

(To be continued).

TRICHINÆ,

A LECTURE DELIVERED BEFORE THE STUDENTS OF THE
AMERICAN VETERINARY COLLEGE.

BY F. S. BILLINGS, V. M.

(Continued from page 231.)

From the time of the above-mentioned case of Zeukers, numerous others have come to pass in different countries, and epidemics of the disease have caused a shudder of horror among reflecting men and women. Such epidemics have been reported at Corback, 1861; Plauen, 1861-2; Calbe, 1862; Hettstadt, 1862-3; Hanover, 1864; Dresden, 1864, and other places in Germany. The most remarkable outbreak, however, is that of Hedersleben, a place of some 2,000 inhabitants, of whom 337 were sick at one time, and 101 died of trichiniasis. Cobbold communicated to Heller that the first authentic case of the disease's introduction in man came to pass in England in 1871.

Several most interesting examples of the discovery of the parasites in the muscles of living persons have been recorded in the annals of medicine.

We have already alluded to the case of a woman suffering from cancer of the breast at Altona, trichinæ being found in portions of it, on its removal.

The case of a stout and apparently healthy man entering a hospital at Calcutta with a tumor on his neck, and the subsequent discovery of trichinæ in the tissues of the same, is reported in the *Boston Med. and Surg. Journal*, Vol. LXXII, p. 167.

Laugenbeck, of Berlin, also removed a tumor in which the parasites were discovered.

Forty persons became diseased at one time, at Bremen, from eating American pork.

*At Lissa, five members of one family became infected from eating of a ham which, it was said, *had been pickled, then smoked, and boiled for two hours.* †A poor woman became infected from the consumption of dog-meat, which her necessities had driven her to for nourishment. ‡At Lindau, a suburb of Hanover, four hundred persons were infected at one time, and twenty-one died from eating trichinous pork. §Dr. Kiefer, of Detroit, reports a fatal case of this disease, the patient dying at the end of the fourth week. He also refers to other cases reported by Drs. Kronpein, of New York State, and Duigler, of Ohio.

Dr. Herr, Dubuque, Iowa, reports fifteen cases, of which five died from eating raw smoked ham made into sausages.

Several cases are reported in the *American Journal of Medical Science*, as having taken place in Philadelphia. In January, 1881, a case occurred at Blackwells Island, N. Y., which caused considerable excitement. Two cases were reported in Chicago during the same month, and two at Milwaukee, Wis., in December, both of whom died. Dr. Germer, Health Officer, Erie, Pa., writes the Treasurer Board of Health, under date of January 27, 1881, that the preceding Christmas he discovered seven cases in a place eight miles distant, which were caused by eating the ham of a home-fed and cured hog.

The most interesting American case, to my mind, is one that occurred at Brooklyn, N. Y., in September, 1879. Seven of a family were affected and two died. This case came to trial at Brooklyn, the family suing a packing house of which they had bought half a ham two days previous to the outbreak of their sickness. As they had been continually in the habit of eating raw ham and sausages, and as they had purchased the ham only two days previous to the first symptoms of the disease, it is self-evident the plaintiffs did not have any case, especially as no microscopic examination of the ham had taken place. Further, it does not seem how retailers of pork can be held responsible for its containing trichinæ in a country where neither the law or the community recognize the existence of any such disease of

* † ‡ § *Boston Med. and Surg. Journal*, Vol. XC, p. 491; Vol. XCI, p. 471; *ibid.*, p. 627; Vol. LXXIV, p. 208.

such flesh. Even our Boards of Health simply recognize the existence of the parasites in pork as a scientific fact, but take no steps to prevent its sale. All the hogs examined by myself were cut up and sold, even though the Massachusetts Board knew that I was continually finding trichinæ among them. Until the public becomes alive to its own interests, we may be sure no steps toward prevention will be taken by the State. A German Judge, however, has ruled differently than was the case at Brooklyn.

*A provision dealer at Berlin was declared guilty by a Judge of a criminal court for selling trichinous pork, which had not been subjected to microscopic examination, but which had caused disease in a number of persons, some of whom died. The Judge ruled that such a decision was justifiable, even though the microscopic examination of pork was not then made imperative by law. The objection that the seller had no knowledge of its injurious character, was ruled out.

Dr. Sutton, of Aurora, Indiana, reports the following nine cases of trichiniasis, three of which ended fatally: All of the persons had eaten of uncooked smoked sausages, which were derived from a pig, the flesh of which had never been examined; the sausages were found full of trichinæ. All the sufferers showed the same symptoms of gastro-enteritis; muscular pains were, however, not present in all. In one of them, who died, the muscular pains were so severe, that he could not make the least movement; general œdema also complicated his case. An investigation of the muscles of this person revealed an immense number of trichinæ, so many, that it was calculated each cubic inch contained 100,000. In both the other cases, which enjoyed the same cause, and were accompanied by the same symptoms, no trichinæ were to be found in the muscles, post-mortem, only the indications of gastro-enteritis. One or two trichinæ only were found buried in the mucous coating of the intestines. In the first case, the general œdema and myalgia appeared ten days after the appearance of the gastric phenomena, and as eight days (or thereabouts), are necessary to the development of the embryo trichinæ, the emigration of the same over the organism must have taken place very rapidly.

*Apothekerzeitung, 1876, No. 20.

The resemblance of the symptoms in both the lethal and milder forms with those of simple inflammation of the intestines, is of great moment in considering the disease in man, and have also been produced experimentally in the dog. Many cases which have in America been looked upon as dysentery, may have been mistaken for trichiniasis.

This is rendered still more probable from the fact that from microscopic investigations of thousands of swine slaughtered in Indiana three to sixteen per cent. of the same were found having this disease.*

The Western States are mostly intended in pork raising, and some five million swine are yearly slaughtered there, the flesh being one of the chief supports of the people. If four per cent. of these animals are trichinous, that would be twenty thousand infected swine slaughtered yearly, and we can easily see how many hundred human beings could possibly become diseased and escape notice, as in ninety out of every one hundred cases the intestinal phenomena generally predominate (*Lancet*, Vol. II, 24, 1875).

“Our readers will be shocked to learn that another case of trichinosis has appeared in this vicinity, death resulting from the disease. The subject was a Mrs. Hamer, who was treated by Dr. Dunning of West Webster. The case appeared mysterious and baffled all treatment. A sister of Mrs. H. was also taken sick with symptoms of similar character. An investigation of portions of the muscles of the lady that died demonstrated the presence of immense numbers of trichinæ.”—(Rochester, N.Y., *Democrat*, May 1, 1879.)

Cases have also been reported in the annals of the Michigan State Board of Health at Otsego, Detroit, Port Huron and other places, many of which ended fatally.

* It would be very valuable to have some official record of these thousands of swine which have been examined. As none such exists, we must believe the same to be a loose assertion without foundation.

STATISTICAL REVISION OF THE TRICHIN EPIDEMICS IN SAXONY FROM
1860 TO 1875.*

Thirty-nine outbreaks of trichiniasis among men have taken place in the sixteen years in question. The whole number of persons which were reported to the officials was 1,267; of these nineteen died—1.58 per cent. In a proportionally small number of cases the infection took place from eating raw meat; in most cases, however, “knockwurst” and “bratwurst” were the causes. The sausages are made from raw chopped meat and smoked for one or two days, and eaten either cold or slightly fried. Of the nineteen persons that died three (of eight) were infected from raw meat; two (from 630 infected) from cold hashed sausage; eight (from 340 diseased) from “bratwurst” (fried sausage); and two (of forty-eight diseased) from ham; with reference to the other four there is no information. Of the 6,959,964 swine which were slaughtered in Saxony in these sixteen years only 39:1:180,000 gave occasion to trichiniasis in man.”

It is much to be regretted that the statistics of our medical schools and hospitals do not give us the exact number of cases where trichinae have been found at autopsies of human beings. Dr. Bowditch reported four such cases in the *Boston Medical and Surgical Journal* of 1842-44. Turner says of Scotland, that in five years, 1.2 per cent. of the human cadavers were found trichinous. Fiedler found in Dresden 2.4 per cent. to be in the same condition. Wagner in Leipsic reports one to every 30-40 cadavers as trichinous. Virchow reports them as quite frequently met with. Zeuker reports 1.79 per cent. of the autopsies seen by him at Dresden as trichinous. Reports of like nature, though not of so great a per cent., come from Italy, Russia, Sweden and other countries.

Austria lays claim to great immunity among her swine, which, it seems to me, must be sought in insufficient examination of slaughtered hogs.

†Prof. Franz Mueller, of the Royal Veterinary Institute at

* H. Reinard's *Archiv d'Heilkunde*, 18 Jahrg., p. 241, 1877.

† *Oesterreichische Vierteljahrsschrift für Veterinairkunde*, Vol. LI, No. 2, p. 176.

Vienna, says that for years neither in Vienna or in its vicinity has a single trichinous swine been found, notwithstanding investigation at the hands of experts, nor has a case of trichiniasis by man taken place.

PREVENTION OF THE DISEASE IN MAN.

All the regulations which we have previously detailed with reference to the prevention of the disease in the hog are equally applicable to its prevention in human beings. Aside from these there is much which man can do to prevent the disease, even though the pork eaten may contain the parasites in great numbers. *The only secure means of prevention is long and sufficient cooking. Heat thus applied is sure death to these parasites.* Lenckart's and other experiments have shown that a temperature of 140° F.—which must extend through a piece of pork—is necessary to securely render trichinæ inert. The direct application of dry heat to slides holding specimens of trichinous pork, by means of Schultz's heating table, has demonstrated, under the microscope, that a temperature of 50° C. or 122° F. is necessary to the certain death of the trichinæ. Leisering's experiments with trichinous pork made up into sausage meat and cooked twenty minutes, gave positive results in one rabbit fed upon it and negative in another. He sums up his experiments as follows :

1. Trichinæ are killed by long continued salting of infected meat and also by subjecting the same for twenty-four hours to the action of smoke in a heated chamber.

2. They are not killed by means of *cold* smoking for a period of three days, and it also appears that twenty minutes cooking of freshly prepared sausage meat is insufficient to kill them in all cases. The various kinds of cooking, however, are quite different in their effects on trichinous pork. Frying and broiling are most efficient, roasting coming next. Boiling coagulates the albumen on the outside and thus interferes with the penetration of the heat into the centre of the piece. No matter what method of cooking may be employed, all pork must be well cooked,

EDITORIAL.

UNITED STATES VETERINARY MEDICAL ASSOCIATION.

The twentieth annual meeting of the United States Veterinary Medical Association has just been held, and has proved one of the best which the Association has had for several years. Various important matters of business were transacted, several new members were elected, and quite interesting subjects were brought forward to fill up the time the members were together. We must, however, do, as we have already done in former occasions, complain of what we consider a great lack in the proceedings of the Association. We refer to the want of proper attendance to duties by some of the committees of that honorable body. It will be seen, for instance, that of all the committees appointed two very important remained silent when the time came for them to report. The Committee on Intelligence and Education had no report to make. The Committee on Prizes was absent, or, at least, represented by only one member, who had nothing to say. We regret much that the former committee had failed to find material to write upon, specially in the present condition of the profession and in the actual state of veterinary education; and certainly our disappointment must have been felt by other members, if we can judge by one of the many letters which we have received, where one gentleman wrote to us of an important interest to the veterinary profession, "Inquire into the great necessity of inquiring into the standing of the schools granting veterinary diplomas in America." That alone ought to have been sufficient for a good committee to work upon, and still that of the Association had nothing to report. And again, was not the subject of veterinary sanitary organization another interesting subject?

As to the Committee on Prizes, we were still more disappointed. When the appointment was made of the gentlemen who were to form the committee, we heard of a notice which was about to be sent, or was sent, to all the members of the Association, calling their attention to the prizes and urging them to work for them. What has been the result of that good move? Were

not the members notified? or did the members thus notified throw the notice aside and forget all about it?

This is a very bad state of affairs, and one which, if continued, might prove very detrimental to the usefulness and to the life of the Association.

Still, the meeting did some worthy act; it has appointed a committee and appropriated a certain amount of money to carry on experiments upon the value of inoculation against anthrax by the method of Pasteur. This is a move in the right direction, for while it is giving an opportunity to test the value of the prophylactic treatment of a series of fatal diseases of our domestic animals by one peculiar way, it is not, after all, only the Pasteur vaccination itself which will thus be tried, but vaccination itself. If successful in this mode, the Association should have them keep up their experiments and try the other processes, which, in the eyes of many European authorities, are of a more practicable application and just as successful.

INTERNATIONAL VETERINARY CONGRESS.

As our readers have been informed already in the REVIEW, the fourth International Veterinary Congress is to take place in 1883, at a date to be named on a later period, at Brussels. A number of circulars have already been sent all over the world and every effort taken to make it a great success.

The first congress, which was held some twenty years ago, was started by Prof. John Gamgee, and took place in Hamburg. In 1865 the second session of the congress took place in Vienna, and followed by a third meeting in September, 1867, at Zurich, which, after interesting labors, adjourned to 1870, when the meeting was to be called at Brussels. From unforeseen events, however, the Committee on Organization failed to have the meeting at the time appointed, but since then arrangements have been made to hold it next year. Amongst the interesting questions which are to be discussed there is one which we think will be studied by veterinarians all over the world, and perhaps more by those of America, where the profession is comparatively young,

and where the organization of veterinary education can be benefited by the lessons and experiences of the Old World.

This proposition rests on the *organization of schools, their connection with universities or other establishments of learning; preliminary instruction; development of the studies.*

The various articles which were proposed at the third International Congress read as follows:

1st. Preparatory studies to that of veterinary medicine must be as extended as those required for the study of human medicine. It is desirable that as early as possible veterinary students should be required to possess the same preparatory knowledge as for university studies. As, for numerous reasons, this could scarcely be enforced, however, the congress has decided that the minimum of preparatory to special veterinary studies must be equivalent to those obtained in a higher class but one of a school preparing for admission to a university. * * * * *

2d. *Three years of special studies at least are necessary for veterinary medicine.*

The creation of veterinary surgeons of various classes, according to their various degrees of education. is opposed.

3d. Veterinary schools may be separated, autonomous establishments, or may be connected with universities, as other schools of superior instruction; BUT VETERINARY MEDICINE MUST BE TAUGHT IN SPECIAL CHAIRS. CONGRESS CANNOT BUT DISAPPROVE THE INSTITUTION OF A UNIVERSITY CHAIR WHERE ONE PROFESSOR ALONE HAS FOR DUTY TO FORM VETERINARY SURGEONS, AS THIS MODE OF INSTRUCTION IS ALTOGETHER INSUFFICIENT.

4th. This necessary organization of veterinary education must be adopted wherever the practice of veterinary medicine is properly established.

VETERINARY COLLEGES.

With the month of October returns the opening of medical schools and of veterinary colleges. But a few years ago, schools of that specialty of medicine were unknown, and if we can judge from the present condition, and from the reports which come to us, the prospects are that before long, veterinary education will

be as easily obtained as human medical instruction, veterinary colleges being as numerous. The question, however, is, whether this sudden growth of schools of that specialty of medicine is going to be of much advantage, either to the profession or to the public, and if, instead of several small schools, it would not be better to have one large institution, under city or State supervision, and if this governmental school is not possible, whether it would not be more in the interest of veterinary science, which is yet so young in America, to have all the separate schools unite together and form one large institution, with one object in view, namely, elevate the profession. We know that competition is the chief life to success, and that if schools have between them an honest rivalry and a desire for constant improvements, students will be benefited—the school in that case which would do the best would be best patronized—but is this always to be the case? Are not temptations to be so great that benefit to the profession will be but second or third rate considerations, especially when, as now, the number of veterinary students will scarcely be sufficient to supply, in a satisfactory manner, all those veterinary schools? We fear not?

The great difficulty in the permanent success of veterinary schools and long life has been that, up to recently, they were the result of mere personal efforts and private undertakings, and if what might be called a governmental school was started, these private institutions would be obliged to close their doors; in fact, it would be their duty to do it. New York State has been the only one where, so far, veterinary colleges had existence long enough to have them considered a success, and it is probable that their life will last for some time to come. But there are two other States in the neighborhood of that great one, viz.: Massachusetts and Pennsylvania, which also are going to work in the interest of veterinary medicine, and whose influence may be of some importance in the life of private schools. Harvard Medical College has already opened her course of veterinary lectures with Prof. C. P. Lyman in the special department of veterinary medicine. This is a great opportunity for the Professor. No one who ever attempted to teach veterinary science, with the ex-

ception of Prof. Law, ever had as handsome an opportunity to make the attempt a great and permanent success. Assisted, as he will be, by the name of the institution with which he is connected, by her reputation, her high standing faculty, her financial support, what more can one desire, especially when, with all this, he has also with him the best wishes of the profession.

Pennsylvania is also preparing for the same work. The intention, announced some time ago, that the Pennsylvania University was going to start a veterinary school, has already received a certain amount of execution. Funds have been contributed, grounds for buildings have been provided, her future teachers have gone to Europe and have prepared themselves for the work. The University has been slower in coming into active life than Harvard and the other schools, but she has done it carefully, and though it may be yet two or three years before a regular veterinary course will be established, we are much inclined to look upon the veterinary school of the Pennsylvania University as the veterinary school of the future. Philadelphia will then redeem the bad name and reputation that the McClure put on her at the time of the famous veterinary diplomas mill.

A JUST DECISION.

We print in this issue the decision rendered by the Hon. Judge of one of the District Courts of New York City, in a case where a veterinarian met with an accidental fracture of a dorsal vertebrae, while operating upon a horse for catilaginous quittor. The case was very plain, and no anxiety could be felt in the matter on the part of the veterinarian. Still it is a good precedent worthy of registration, especially in this country, where a man is so likely to take similar steps as the plaintiff in this action, urged by errors or wrong advisors, where the life and value of a horse is at stake.

TEXAS FEVER A MATTER OF NATIONAL IMPORTANCE.

BY D. E. SALMON, D.V.M.

(From the Breeders' Gazette.)

There is no infectious disease with which we should be better acquainted than with the so-called Texas or Spanish fever of cattle. Its ravages have been known, and its peculiarities have been a subject of comment in the Northern States for the past ninety years; while it had existed in certain parts of the South for we know not how many centuries earlier. All the cattle taken to the infected districts of our Southern States to improve the native herds, or to introduce new breeds, have been subject to this affection from time immemorial, and the few which have survived became innured to it, just as a certain proportion of the foreign population of Havana becomes innured to the yellow fever. With both of these diseases the immunity acquired in this way has been erroneously ascribed to acclimatization, while in reality it consists either in a natural insusceptibility to these affections, which a few individuals possess, or it is the result of a mild attack, which, with these, as with other infectious maladies, protects against the peculiar virus in the future.

Even the beef cattle shipped from Tennessee and the mountains of the Carolinas, Georgia and Alabama, to certain market cities of the South, contract the plague in so short a time that it is nearly impossible, though it be winter, to get them slaughtered before the first symptoms appear; while the number of times cattle from the South have infected the pastures of more northern latitudes, and destroyed the native stock upon them, has certainly been sufficient to demonstrate, to well-informed men, the dangerous qualities of such animals.

I state these facts, which are a matter of history, and of every-day observation in certain parts of our country, to recall the infinite importance of the subject and the necessity of our stock raisers having correct information, and of keeping it before them, in order that at least a part of the enormous losses may be arrested, which are now of annual occurrence. From time to

time in the past, I have endeavored to call attention to our true condition in regard to this disease, but the light-headed correspondents, not only of our agricultural journals but of our great dailies, have been so industrious in the dissemination of their peculiar opinions—opinions arrived at by a sort of intuition, and at hundreds of miles from a case of the disease—that many have become skeptical in regard to the way in which the affection is transmitted, or even as to its existence. But the stock raiser in Missouri, Kansas or Indian Territory, who repeatedly and clearly traces his losses to crossing the trail of a Texas herd, or to the pastures which such a herd has infected, has no such skepticism; nor had the farmers of the great States of Illinois, Indiana, Ohio and Kentucky, when, in 1867 and 1868, they saw not merely thousands, but tens of thousands of their native cattle swept away by this pestilence.

The excitement which followed this destruction has long been forgotten, however, and the majority of our farmers have never even heard of Texas fever, and so every year certain individuals of a speculative turn of mind invest in the cheap cattle of the South, and graze them immediately upon pastures which are also occupied with their native animals. When the heat of July and August has enabled the germs deposited upon the soil to multiply sufficiently, the susceptible native cattle are infected and die, and we are then told of a new and strange disease of the most remarkable virulence. This is the substantial history of hundreds of cases which have occurred, and are continually occurring in North Carolina, Virginia, West Virginia and other States, and which have furnished the text for the many absurdities lately written, not only by the penny-a-liners, but, I am sorry to say, by those as well who claim to be veterinarians.

How important it is, then, that our farmers should accept the fact, that in a vast section of our country—a section more than six times the size of England and Scotland combined, and two and a half times the size of France—we have a terribly fatal indigenous cattle plague, permanently located; and that all cattle taken to this district are liable to be infected, while those taken from it, though apparently unaffected themselves, are capable of

carrying the germs to infect the pastures and roads on which they travel. This fact, so patent to every observing man, demonstrated over and over again so many times, and now supported by hundreds and thousands of facts, is nevertheless contested by a majority of farmers, and even in districts where losses are annually occurring, there is far from a unanimity of opinion. The losses are ascribed to ticks, to mushrooms, to peculiar characters of the vegetation, to acid in the soil, to something in the air, and, in fact, to anything and everything but the real cause, which there seems to be an extraordinary determination to overlook.

In the Northern and Western States it is not a difficult matter, as a rule, to trace the outbreaks of this disease to the introduction of Southern cattle; but along the border line of the infected district, where cattle are being continually driven, and where most of the roads and commons are infected, it is next to impossible to discover exactly how very many of the cases have originated. And it is just here, where it is doubly important for the people to have clear ideas of its origin and nature, that they utterly refuse in many cases to be convinced—that they will not take the necessary precautions to avoid it, and, as a result, suffer most disastrously.

If the losses from this stupidity were confined to those who ignore so plain a fact, we might be satisfied to allow the matter to rest; but, as I demonstrated in my report to the Department of Agriculture on this disease, the permanently infected district is being continually enlarged in this way—the border line is advancing farther and farther, and it seems to be only a question of time when our whole country will be infected. I say only a question of time, but it may be possible that our stock owners can yet be roused to an appreciation of the dangers which threaten them, and that they will impress upon their representatives in Congress the necessity of national legislation for controlling such destructive pests. At present we seem to be in the remarkably absurd predicament that the States can make no effective laws, because this would be infringing upon the prerogative of the Federal Government, and Congress will do nothing, for fear of violating the rights of the States; so that, between the two, we are about as helpless as it is possible for a people to be.

It may be that in this respect I am assuming somewhat the character of an alarmist, but there are certain cases in which it is justifiable to sound an alarm. If the colonists of Australia and South Africa had realized what was in store for them by the introduction of pleuro-pneumonia, would not they gladly have slaughtered the infected animals as soon as discovered and placed sentries around every infected piece of ground? But they did not realize their danger, and the result was most disastrous to their leading industry; nor do we to-day, as a people, realize the losses that are continually occurring, and the much greater losses that must of necessity follow in the future from pleuro-pneumonia and Texas fever if they are not checked. Any one who understands the nature of pleuro-pneumonia could have predicted with absolute certainty the result of infecting the ranges of Australia and South Africa with the germs of this disease; and so the result of infecting our pastures with either lung plague or Texas fever may be predicted at this time with the greatest confidence. It is not a question as to whether our people should be aroused and alarmed, but simply as to how this can be done in time to prevent the misfortune that is impending.

We have remained tranquil in the belief that the Texas fever infection was only permanent in the malarial districts of our south Atlantic and gulf coasts, and that it could under no circumstances resist a heavy frost. But this is a deplorable mistake. Texas fever and malaria have nothing in common---the infection has extended and is now permanent in lands perfectly free from malaria; and not only does it resist a heavy frost, but it is not even exterminated by winters when the temperature sinks to zero, or even below.

I have written this to call attention to the importance of this disease; and when I have added that as the plague advances over a new district it not only destroys the greater part of the native cattle, but it makes the raising of these animals practically impossible for ten or twenty years, and that forever afterwards the introduction of improved stock is attended with the most disheartening losses, the reader cannot fail to see that this importance is not exaggerated.

REPORTS OF CASES.

(Sent to the Meeting of the U. S. Veterinary Medical Association.)

RECURRENT FIBROMA.

BY G. C. FAVILLE, B.S., D.V.M.

On May 15th last, a large four year old mule was sent me, with the injunction to "kill or cure."

The animal presented a most disgusting appearance. On its head, beginning at the base of the right ear, and running in a direction down and back, following the angle of the jaw, were two very large "bunches," as large in themselves as the balance of the head. The skin was drawn tightly over them, and in places was broken, giving them a sloughing, bloody look. On the neck were several bunches, varying in size from a peck measure to a walnut.

About a year before the animal had a small nodular swelling in the submaxillary space, and the owner thought he had been hurt in some way. The bunch kept enlarging, and finally had been removed, but soon came back, and others also appeared in several places on the head and neck. I pronounced them "recurrent fibroma," with an unfavorable prognosis. At the owner's desire, I anæsthetized the animal. Cutting into the bunch nearest the ear, I removed with very little cutting, forty-four (44) fibrous tumors, ranging in size from a "double fist" to a pigeon egg. Hemorrhage was very great, despite my utmost efforts. Dressed with absorbent cotton, and saturated with liquid ferri sub-sulph.

May 17th. Removed a nest of forty (40) tumors from submaxillary space.

May 23rd. Removed, with an ecraseur, a cyst from the neck, containing twenty (20) tumors, and from individual cysts, some six or eight more, making in all more than 110 tumors that were removed.

In order to obtain a complete slough of whatever portion of the cysts that remained, I used a dressing of pure carbolic acid, covering the wounds with marine lint, saturated with the acid. I

sent the animal home, a distance of eighteen miles, on May 25th, and to-day he is at work.

Microscopic examinations showed the tumors to be "spinale celled sarcoma."

TORSION OF THE UTERUS IN A MARE.

BY THE SAME.

June 3d, I was called to see a large brown mare which had been in labor for about twelve hours, with no appearance of the foal. The hostler had examined her and said he could find no opening to the uterus at all. Examination showed a complete right torsion. The throes of the animal were terrific, and before anything could be done to check them, during one of her excessive struggles, the vagina was broken through on the left side, and several yards of intestine were forced through the opening and out at the vulva, and the animal rapidly sank and died from internal hemorrhage. Post mortem showed the condition I have described. The uterus contained a large foetus, and there was complete torsion. I could trace no cause for the trouble. The mare was nine or ten years old, and had raised several colts.

MONSTROUS CALF.

BY THE SAME.

June 16th. Called to see a cow that had been in labor about twenty-four hours. The water bags were ruptured, and the four feet and the head of a foetus were presented. Examination showed that there was something abnormal, and gentle traction that the foetus would come as it was. It could not be moved back at all, so I pulled it away with force. Imagine a section to be removed from the body, extending from the first ribs to the sacrum, and the remaining parts to be placed backs together and united. Or the sacrum to be united with the seventh cervical and then turned completely back. Head, neck, and limbs were perfect. The intestines were all present but floating around loose,

attached to the body only by a small pedicle at the junction of the four limbs. There were no abdominal or thoracic walls, but all the viscera were present floating in the foetal membranes. Another foetus was present, normal but dead.

NEW REMEDY.

BY W. CUTTING, V.S.

I have began the use of a (to me) new remedial agent, the "ol Ucalyptol folis." The first case I used it on was a case of foetid nasal gleet. On the 20th of March, 1882, I trephined the frontal sinus on the near side of the head of an oldish gelding, in good, fair condition. Although kept in a shed outside of a brick barn, containing twelve or fifteen horses, he made the whole premises stink. The discharge was constant from the near nostril; the submaxillary gland was swollen and hard on the near side. I made an opening five-sixteenths of an inch in diameter into the sinus, syringed it out with warm water, and then rinsed the cavity out with a weak solution of chloride of lime. The next day I dressed it with the ucalyptol, injecting a small quantity into the cavity. The fetor ceased immediately. I continued the dressing once a day, rinsing out first with warm water and then injecting the ucalyptol. On the 16th of April I dressed him the last time, and reported him cured. I saw him a day or two since. The cure is permanent, and the lump under the jaw has disappeared.

CARTILAGINOUS QUITTOR.

BY THE SAME.

I have now a case of quittor that I am dressing with the ol ucalyptol. The owner ordered me not to cut the foot on any account. The animal, some six months ago, picked up a nail, wounding, I think, the inner alæ of the os pedis of the near hind foot. The foot was poulticed by the groom thoroughly. Some time ago I examined the foot, and although there was a small

sore on the inside heel, I could find no sinus. I ordered it dressed with digestive ointment, but at last it fully developed into a quittor. I passed a probe into the sinns an inch and a half, to the bone. So I rolled a little bi chloride of mercury in paper and passed it to the end of the sinus. The core formed, and in due time I took it out, since which I have dressed the cavity with the ucalyptol. The wound looks favorable for recovery. On dressing, I saturate a piece of cotton batting with the ucalyptol, pass it to the bottom of the wound after washing it clean, covering with dry batting, and keeping it in place with a finger bandage. I have an idea that the use of this agent will prove a step in advance in the treatment of such cases as nasal gleet, quittor, fistulous withers, and poll evil.

STRANGULATED SCROTAL HERNIA—DEATH.

BY C. H. PEABODY, D.V.S.

About 9:30 P. M. on the evening of June 23d I was requested to visit a stallion that had been suffering from colic since the evening before. On inquiring I found that my friend, Dr. Scrutton, had been attending, and I refused to go without Mr. Scrutton accompanying me, which he did.

On the way to the track where the animal was, I obtained from Mr. Scrutton the following history: He had known the animal since he was foaled, six years. Had at four months old reduced a small scrotal hernia. Again, at eighteen months, advised castration, but owners would not consent. Again, at about three years old the same trouble; recommended castration, but was not allowed to do it. The animal has suffered from the same thing several times since, getting over it himself sometimes, then again having to be helped. Has been wearing a leather truss for a long time until last night, June 22d, Dr. Scrutton was called, and, with the assistance of some stablemen, reduced the hernia. Advised castration, and went prepared to do it this morning (June 23d), but was not allowed to do so, the animal being quiet from the opiates he had given in the form of opium and chloral.

He remained quite easy until about 4:30 P. M., when he began to be restless; remained so until 6:30. Dr. Scrutton and I arrived at the track about 10:30 P. M. There was a black stallion six years old, 15 hands, 3 inches high. The pulse was imperceptible; respiration labored; temperature 103, extremities cold; body covered with a cold perspiration; some tympanitis; trembling of posterior extremities and flanks. On examining the scrotum found an enlargement of the nigh side (the whole scrotum being nearly as large as a boy's head). By bringing pressure on the nigh side with one's hand, could both feel and hear a swashy movement. After a careful examination per rectum, etc., we gave a prognosis of unfavorable result; decided not to operate, as the owner then wanted us to do. *Treatment.*—Hypodermic injections of morphia. The animal died about 1 A. M. June 24. We made an autopsy sixteen hours after death, and on the nigh side found in the scrotum from the entrance through the ring to the loop, fourteen inches (making in a straight measurement twenty-eight inches) of intestines, which were of a dark purple color, and very much thickened, and containing eight ounces of dark bloody colored fluid. Dr. Scrutton kindly gave me the specimen, which I have preserved. I have since been informed by Dr. Scrutton that the horse's grandfather, Narragansett (at the time owned by A. & W. Sprague), died from the same cause.

A PIECE OF WIRE IN A COW'S HEART.

BY THE SAME.

At about 3 P. M. on April 20th I was called to see a cow. On the way to the farm I got the following history: The cow had been well until about a fortnight before, when it was noticed that she was a little dull; that once in a while she coughed, and she began to fail in her milk, but for the last week she had lost flesh very fast, had stopped giving milk altogether, breathed very hard and fast. Felt hot at times, then would be cold and shake. For the last two days would neither eat or drink, but stood with

its head down; that something looking like pus ran from her mouth. About twelve o'clock that day, when we arrived at the farm, we found the animal dead.

Post mortem was made at once. I found all the abdominal organs but the liver healthy. In the liver there was quite a large abscess that contained about four ounces of pus of a very foetid odor.

On opening the thoracic cavity I found the right lung congested and two abscesses in it, holding about eight ounces of pus; the heart was enlarged to a considerable extent. I found a round cord-like growth coming along the tract of the posterior aorta. On cutting into it I found it contained pus. On removing the heart I found a piece of wire, such as is used on hay, three and a half inches long, had worked itself through the right auricle of the heart and pinning, as it were, the auriculo-ventricular valve in its course downward so it could not work. As it was nearly dark and the post mortem was made in the woods and in a hurry, it was not as thorough as I would like to have had it.

FRAC!URE OF THE OS SUFFRAGINIS.

BY THE SAME.

April 15, 1878, called to see a gelding which had slipped from the curbing of the sidewalk to the pavement and fell on its off side. In getting up it struggled considerably, and when it got ou its feet was unable to put its off fore foot to the ground. This is the history I got on my way to the stable.

On arriving there I found the animal standing on three legs, the fourth one swinging every time the animal moved.

Diagnosed the case. Compound fracture of the os suffraginis, and advised the animal to be destroyed, which was done.

Post mortem of the leg found the first and second pastern bones involved in the fracture, the first pastern bone broken into twenty-eight pieces. The os corona had the internal angle of the superior articular surface broken off,

REPORT OF THE COMMITTEE ON DISEASES.

BY PROF. A. LIAUTARD, Chairman.

Mr. President and Gentlemen:

When I accepted the compliment paid to me by our worthy President to serve as chairman of the Committee on Diseases it was my hopes to be able to gather sufficient material and data to make a report which would have proved interesting to the public at large as well as instructive to the profession. Being unexpectedly called to Europe this summer, after a short stay I returned to my duties, and found the time so short that I was almost tempted to give up the work and follow the example of our friendly predecessors and only report "progress," but at the same time thought that in so doing I would do injustice to our friends and to the Association. It was then that I decided to try and obtain the information that I beg here to present you, asking your indulgence for whatever disappointment this report may bring you.

I supposed that the objects of such a report was to give the collective information of what form of diseases had prevailed through the country, and to obtain whatever light could be gathered relating to the entire history of these diseases. To that end I distributed one hundred copies of the little circular which you have all received and in which the six following questions were put, viz :

- 1st.—What diseases have been most prevalent in your State or cities for the last twelve months?
- 2d.—Have you had any epizootic outbreak? If so, of what disease?
- 3d.—Give a short account of supposed causes, peculiar symptoms, lesions, treatment and result. If possible, average mortality.
- 4th.—Have you seen any cases of contagious diseases? If any peculiar case, give short account.
- 5th.—Have you had or heard of any specially interesting cases of pathology, surgery or obstetrics? If so, give a brief account.

6th.—Give any material that you may think of interest to veterinarians, in any of their specialties.

I need not tell you how fully I appreciated the imperfection of this circular ; but I felt that if it was well received by those to whom it was sent and if it was answered, I could have a fair amount of documents to work upon.

Those one hundred circulars were sent to members of the profession in the United States and thus spread into twenty-nine States of the Union. I am pleased to inform you that I can present you with a general sanitary condition of fifteen States whose practitioners have done me the honor of an answer. Unfortunately, amongst the fourteen upon which I cannot report are some whose condition would have been most interesting to us at this time, when sanitary medicine is receiving such recognition by the General Government. Indeed, it would have been important to us to know how New Jersey and Maryland were doing with their pleuro-pneumonia, how Nebraska, Colorado and Texas were doing with anthrax, Texas fever, while information from Michigan, Iowa, Minnesota, Indiana and Maine would have proved most interesting. Those States are too wealthy in domestic animals to avoid interest in their welfare. The various letters which I have received have allowed me to ascertain the fact that some diseases have been prevailing, more or less, in various States, and that in some these affections, whether contagious or not, have been so extended that they could almost be considered as regular epizootics. The answers were from the following gentlemen: J. H. Stickney, O. H. Flagg, J. F. Winchester, W. Bryden, E. F. Thayer, *for Massachusetts*; B. McInnes, *for South Carolina*; P. Z. Colsson, *for Alabama*; J. D. Hopkins, *for Wyoming Territory*; M. R. Trumbower, C. Crowley, S. V. Ramsay, J. B. Galt, *for Illinois*; W. Manz, J. C. McKenzie, C. Burden, G. Kidney, W. Cutting, *for New York*; W. Derr, N. S. Townshend, *for Ohio*; O. L. Hendershott, *for Kansas*; J. Rice, *for Connecticut*; W. Zuill, N. E. Rheinhart, J. C. Michener, *for Pennsylvania*; C. H. Peabody, *for Rhode Island*; G. Agersborg, *for Dakota*; L. H. Tourtellotte, E. R. Evans, *for Wisconsin*; W. E. B. Miller, *for New Jersey*; G. C. Faville, *for Kentucky*; R. McLean, as we came to the meeting.

Influenza.—The most prevailing disease of all, and one that I found named in thirteen answers of those received, is that which under the same symptoms and same history I find receiving the various names of pink-eye, influenza, epizootic cellulitis, pink-eye fever, epizootic influenza, and which, by all reports, has prevailed in Massachusetts, New York, Illinois, Kentucky, Kansas, Wisconsin, Dakota Territory, South Carolina, Missouri, Alabama, Pennsylvania, Rhode Island, Ohio and Connecticut.

The interesting point relating to that disease is the fact, which seems to be arrived at from observation, its importation from Canada. Mr. W. Cutting, of Rochester, in his letter says that “a form of influenza has prevailed in Rochester and vicinity, epidemic in character, and which, from investigation, I think was existing in Canada shortly before it was observed here, as many of the horses brought to Rochester for use and for sale by dealers were suffering from the disease when brought here,” and the infectious character of the disease being noted by Dr. Michener, of Colmar, Pa., who says “that the only feature of the disease deserving notice is its spread by infection. I have taken much pains to learn the history of all cases, and Philadelphia has been the centre of inspection. For the surrounding country all of the horses in our section escaped, except those going to market, those stalled with them and drove-horses. Very few, put in infected stables, escaped.”

In most States that disease has assumed the same character of more or less catarrhal troubles, with dropsical condition of the extremities, though in some part of Illinois, according to Mr. Trumbower, the abdominal form has been most extensively prevalent. According to Dr. Stickney, the spring of this year was the time when it was most prevalent in Boston.

There are also, in connection with this outbreak, two very interesting facts to observe: one is the appearance of glanders and farcy, which by some seem to be considered as a sequelæ of influenza; and the other is the large number of abortions which followed in pregnant mares. Dr. Crowly, of St. Louis, says in his letter “Abortions were numerous in breeding districts; some say that from one-half to two-thirds of the pregnant mares aborted;”

and Dr. Trumbower seems to confirm this by the following quotation: "In a number of the attacks, perhaps about two-thirds, of the total number of mares with foal affected by this disease, it affected the mucous lining of the uterus, causing abortion, the animal then usually making a rapid recovery."

Glanders and Farcy.—This disease or these forms of disease are next most frequently mentioned in the reports. Massachusetts, New York, Pennsylvania, Rhode Island, Illinois, Missouri, and even away west to Wyoming Territory, Kansas down to Alabama. As I have already said, it is considered by some as the consequence of the attack of influenza. Dr. Michener, of Pennsylvania, reports one case where, after eight months of treatment by various practitioners, he had at last the satisfaction to have the horse destroyed.

Anthrax.—The various forms of anthrax seem to be the next one on the list. Indeed, we have received information that many cases of anthrax proper have been observed in Dakota Territory, Wyoming Territory, Illinois, Connecticut and Missouri, while from Kansas and Wyoming Territory, the news has reached us of the presence of black leg.

In speaking of anthrax proper, Dr. Agersborg says, "The causes of anthrax seems to be only by infection, although in some cases it has been impossible to ascertain even this. The apoplectic form is the most common here amongst cattle, horses and swine.

Dr. Trumbower says that it has been more frequent and severe since the floods and high water of the spring of 1881 than previous to that time, and Dr. Hopkins writes "that anthrax is wide spread over this territory; that sphenix apoplexy and black leg are the most common forms, mostly in young animals, and due to the luxuriant feed, lack of exercise and also to the fact as to animals dying of this disease, that their putrefying carcasses are left on the plains and in the water courses. This," continues Dr. Hopkins, "is one of the causes of the spread of the disease, and I have made a strong appeal for the burying or burning of the carcasses."

The treatment followed is peculiar in Wyoming Territory,

and consists in changing the range of the animal, driving him ten miles a day, allowing eight hours of pasture, and driving them into a dry corral sixteen hours a day.

“The mortality among cattle and sheep from this disease is immense, but,” says Dr. H., “I have no means to ascertain the number.”

Those statements, gentlemen, are important, and I hope will be remembered by you at a later period of this meeting.

Texas Fever.—Under the same heading we would almost put Texas fever, which we consider as one of the forms of anthrax disease, and which, according to reports, we find has been prevailing more or less in New York, in Wyoming Territory, Illinois and Pennsylvania and New Jersey. You must remember, Mr. President, that in making this report, I am speaking only of the States from which I have heard. We all know that Texas fever has been prevailing in other States than those I have just named.

Hog Cholera and Chicken Cholera.—It is found that these diseases have been prevailing not only in their home-breeding States, such as Ohio and Illinois, but also in Wisconsin, Massachusetts, Pennsylvania and New York.

Cerebro-Spinal Meningitis.—This disease enters for a great share in the various reports which I have received—Connecticut, Illinois, Pennsylvania, Massachusetts complaining of its presence to quite a large extent.

This is a very important affection, which is so commonly fatal, and upon which so many opinions prevailed, that I must mention to you a new theory which was sent me by Dr. Michener, of Colmar, Pennsylvania. The gentleman sends me a long article upon that affection, which in his vicinity is called choking distemper, and which he says is sometimes miscalled cerebro-spinal meningitis—attributing the disease to the presence of a fungus floating in the air or adhering to the feed, and which is principally found in brewers' grains in a sour condition. Leaving aside the name of *fungosus toxicum paralyticus*, which the Doctor proposed, we think the subject worth investigating. I would recommend it to some of our pathologists. The important fact of the

appearance of this disease has been its severity, it having carried off many of the patients of all the gentlemen who have written to me about it.

Parturient Apoplexy has been prevailing in Illinois, Kentucky Wisconsin and New York.

Tuberculous Diseases.—Dr. Winchester, of Massachusetts, mentions that disease as prevailing more or less in Massachusetts, and Dr. G. Kidney, New York, reports also four cases in old cows. We much regret the silence which exists in connection with this disease, which all of us know can be met daily in our dairies, and cannot feel but greatly disappointed to have so little to report about *Pleuro-Pneumonia*, a disease which to us American veterinarians ought to be so interesting, because of the important part it has acted in calling the attention of Americans to veterinary medicine, and still upon which I have nothing to report. I cannot officially, from professional authority, say to you, it is here and not there, with the exception of Pennsylvania, Dr. Michener being the only one who says: "The efforts of our Commonwealth, through the Governor's special agent, to suppress pleuro-pneumonia, has seemingly worked well. We are now free from the disease, as far as known."

Strangles—Have been reported as quite extensive in Kentucky and Wisconsin. Knowing the character of the disease, it is not surprising that such should be the case in these breeding States.

Tetanus.—Connecticut, Alabama and South Carolina seem to furnish us a large proportion of this affection. Dr. McInnis reports to us fourteen cases of that disease, twelve traumatic, two idiopathic, of which one was in a cow. Of these, five recovered, nine died, also the cow. Tetanus occurred as late as sixteen days after punctured wounds of the foot, while some died in fifty hours after tetanus appeared. Some lived twenty days.

Periodic Ophthalmia is reported as very prevalent in Illinois

Foot Rot in Sheep in Wisconsin.

Scab in Sheep in Wyoming Territory by Dr. Hopkins.

Lung Worm has been quite prevalent in Ohio; several

attacks of *azoturia* in Rhode Island; *diarrhæa* amongst new born in Dakota; a few cases of *purpura hemorrhagica* in Alabama, and quite a number of *laminitis* in New York, are reported by Drs. Townshend, of Columbus, Ohio; Peabody, of Providence; Agersborg, of Vermillion; Colsson, of Mobile; Manz, of New York.

A letter received this A. M. from Dr. Thayer, informs me that glanders was not as extensively common as in 1881, and that a peculiar cattle disease, whose nature was not positively known to him, had been reported in the town of Holliston.

This, gentlemen, forms about the entire resumé of the answers which I have received, and to which I am afraid I have, through lack of time, been unable to do justice. In concluding, and while here, I take opportunity to address my sincere thanks to all those who have seen fit to communicate with me. I beg also to report that I have at your disposal a number of very instructive papers which can be read now or will be, later on, published in the REVIEW.

The following papers are those furnished :

1st.—A case of tumor of the guttural pouches, and one of cerebro-spinal meningitis, by W. Bryden, of Boston.

2d.—A case of ventrial hernia, by Dr. W. Derr, of Worcester, Ohio.

3d.—Case of distaikia, by J. B. Galt, Illinois.

4th.—A very interesting case of recurrent fibroma, and one of monstrous foetus, by Dr. Faville, of Kentucky.

5.—A case of a stick in the axilla of a horse, of several months standing, by Dr. Tourtellotte, of Wisconsin.

6th.—A case of influenza with pneumonia, an article on a new remedy, and a case of cartilaginous quittor, by W. Cutting, of New York.

7th.—Cases of cæsarean operations, one of dislocation of the os calcis, one of poisoning in a cow, from eating *euphorbia marginata*, by Dr. Agersborg, of Dakota Territory.

8th.—A long article on the regulation of veterinary practice in New York State, by G. H. Kidney, of New York.

9th.—A case of bronchitis by filaria, by Dr. Winchester, of Massachusetts.

10th.—Cerebro-spinal meningitis or choking distemper, or fungus toxicum paralyticus, by Dr. Michener, of Pennsylvania.

11th.—Case of hernia, one of a piece of wire in the heart of a cow, by C. H. Peabody, of Rhode Island.

12th.—A case of ostea porosis, by W. Rheinhard, of Pennsylvania.

13th.—An interesting fatal case of colics, by Dr. Zuill, of Pennsylvania.

14th.—Observations of muco-enterites, by J. Rice, of Connecticut.

15th.—A case of rabies in a mule, by C. Crowley, Missouri.

SOCIETY MEETINGS.

UNITED STATES VETERINARY MEDICAL ASSOCIATION.

The twentieth annual meeting of this Association was held at the American Veterinary College, Tuesday, Sept. 19th. The Comitia Minora met at 10:45 A.M., with the President, Dr. W. Bryden, in the chair.

Some of the Board of Censors being absent, Dr. Stickney was selected to act in that capacity. Dr. Stickney declining to serve, Dr. W. J. Coates was chosen in his stead. The Comitia Minora were engaged chiefly in the consideration of proposed alterations of the By-Laws, and in reference to candidates for admission to membership. Because of the absence of some of the candidates, as well also as of those proposing them, several gentlemen will be admitted to the Association at the March meeting in Boston. The Secretary was directed to notify all candidates to be present in person at future meetings of the Comitia Minora, or, if unavoidably absent, to forward to the Secretary their credentials.

The regular meeting was called to order by the President at 1:30 P.M. About twenty-five members were present. The minutes of previous meetings were read and accepted. After considerable discussion, it was finally decided, upon motion of Dr. L. McLean, that, in consideration of the reduced fees, Sections 2

and 3 of Article VIII of the By-Laws remain as they are, the Secretary to use his discretion in the matter, and that when any action is taken, it must be before the general meeting.

The following gentlemen were then admitted to membership: Drs. Fred. Saunders, Chas. Moulton, Frank Traver, Samuel Kemp, L. H. Howard, H. W. Atwood, W. S. Devoe, Wm. Dougherty, John A. Leighton and W. A. Sherman.

Dr. J. Gerth, jr., proposed Andrew Sherk, V.S., for membership, and Dr. Coates proposed A. F. Martin, D.V.S., and L. M. Crane, D.V.S.

There were no reports by the Library or Education and Intelligence Committees. The members of the Finance Committee being absent, the President appointed Drs. Winchester and Field to audit the Treasurer's report. The Treasurer was directed to place the surplus funds of the Association in a savings bank.

Dr. Liautard then favored the society with a paper made up from answers to a printed circular sent among the different veterinarians. In this was found chief mention of influenza, cerebro-spinal meningitis, anthrax in its different forms, etc.

Drs. Stickney, Lockhart and Foote were appointed to nominate officers for the ensuing year. They reported as follows: President—Dr. Williamson Bryden, Vice President—Dr. L. McLean, Treasurer—Dr. Charles Burden, Secretary—Dr. C. B. Michner, Censors—Drs. Stickney, Miller, Lyman, Coates, Lockhart, Foote. The gentlemen nominated were elected for the present year.

The subject of printing copies of the Constitution and By-Laws was laid on the table, to be acted on at the March meeting.

Dr. Liautard then introduced the subject of inoculation for anthrax. He also presented to the society the different instruments chiefly used in inoculating cattle and sheep. Anthrax blood and virus were shown in hermetically sealed tubes. Prof. L. suggested the appropriation of society funds for experimental purposes. It was afterwards resolved that a committee of three be appointed to make experiments on the value of inoculation by the method of Pasteur, and \$150. was appropriated for the purchase of some sheep and cows for this purpose. Dr. Liautard

was appointed chairman of the committee, with power to select the other two members.

There were no regular papers presented. Dr. Stickney reported a most interesting case of osteo-malacia, occurring in an old pony. Almost all the bones were affected, it being possible to cut them with a knife. Some of the muscles had undergone fatty degeneration, and were loosened from their attachments, with small plates of bone adhering.

Dr. Miller, of Camden, reported a very similar case in a fifteen months old colt, the property of Dr. Agnew, of Philadelphia. In this case, the limbs became enlarged and painful one after the other, and finally the head presented swellings. Before the death of the colt, and while down and unable to get up, Dr. Miller asserts that the limbs could be tied in knots, as one would a string. All the bones were soft and pliable. Dr. Miller hazarded the opinion that syphilis existed in the system of this colt, and that it was contracted from a groom. The dam of the colt, while being suckled, was suffering from a fracture of the femur, being in slings for about three months.

Other reports of cases were denied the Association owing to the lateness of the hour. The society adjourned to a banquet at Delmonico's, where the evening was passed in the most social and pleasant manner. The next meeting will be at Young's Hotel, Boston, the third Tuesday in March.

C. B. MICHENER, *Secretary*.

NEW YORK STATE VETERINARY SOCIETY.

The regular monthly meeting of the New York State Veterinary Society was held at the American Veterinary College on Tuesday evening, Sept. 12th, with the president, Dr. Liantard, in the chair.

After calling the roll and reading the minutes of the previous meeting, the secretary read a communication from Dr. Bunker, of Newton, Mass., reporting a case of strangulated hernia in a cow, as follows:

"About a week ago Dr. Thayer was called to see a cow which

was out of condition, and to which the man in charge of the herd had given a strong dose of cathartic medicine (epsom salts), which did not relieve her. He found the animal in a dull, listless condition, reluctant to move, moaning more or less—much more, it was said, when she laid down. She had diarrhoea, and the last of her discharges had been accompanied with some blood. She was feverish, but as her anus was relaxed her temperature was not taken. On rectal examination, the fœcal matter was found to be very black and very offensive. On the floor of the abdomen, a little in front and to the left of the udder, was a circular swelling, well defined, and quite hard on palpation.

“There was no history that the animal had received an injury from any cause. A diagnosis of hernia was made, with strangulation of the intestine. No opening could be detected through the floor of the abdomen, but the doctor thought he could detect a slight crepitating feeling.

“I saw the animal once with the doctor, and she was then in about the same condition as at his previous visit. He had given a most unfavorable prognosis at his first visit, which he only confirmed subsequently. The second day, when I went to see the patient with the doctor, we found her dead, and I made an examination.

“On removing the hide from the abdomen, I found a swelling nearly a foot in diameter involving the cellular tissue, which, by the way, was engorged with serum. On removing the tissue, we found the intestines protruding, dilated to their utmost capacity, and gangrenous. The abdominal muscles beneath and around the swelling were excised, and the intestines cut on the inside. We then found that there was a rupture of the floor of the abdomen, some three inches in length, from forward backwards; that a portion of the large intestine, some eighteen inches to two feet long, had passed through this aperture, and had become strangulated.

“Hernia in the bovine is not an uncommon event in practice, I believe, but is not strangulated hernia rare? I should mention the fact that the intestines within the abdomen were all healthy.”

Several of the offices in the Society being vacant, it was voted

to proceed to the election of officers. Dr. Lockhart was unanimously elected 2d Vice-President. Dr. Foote, the present Recording Secretary, was elected to the offices of Corresponding Secretary and Treasurer; and Drs. Lockhart, Coates, L. McLean, Burden and Fields were elected as the Board of Censors. The committee on nominations reported favorably for Drs. William Manz and John Leighton, and these gentlemen were elected to membership. Dr. Coates was appointed essayist for the next meeting, to take place Tuesday evening, October 10th, at the American Veterinary College. The meeting then adjourned.

H. T. FOOTE, M.D., V.S.,
Secretary.

OBITUARY.

E. V. RIPLEY, V.S., OF PORTLAND, ME.

Dr. G. Bailey informs us of the death of this good practitioner, which took place at Colorado Springs on August 18th, where he had gone but a short time before, in the forlorn hope of restoring his failing health. He was 58 years of age at the time of his death.

Speaking of him, Dr. Bailey says: "Generous to a fault, his sympathies were easily enlisted, and his services never sought in vain. He will be greatly missed from a busy practice in this vicinity, and the profession and the public share alike in the loss of a most conscientious and useful practitioner."

DECISION

IN AN ACTION FOR DAMAGES IN A CASE OF FRACTURE OF THE DORSAL VERTEBRÆ OF A HORSE DURING SURGICAL OPERATION.

The complaint in this action should be dismissed and judgment given for the defendant, for the following reasons:

1st.—The plaintiff has failed to prove that the defendant killed the horse mentioned in the complaint.

2d.—The plaintiff has failed to prove that the defendant was guilty of any negligence or malpractice in connection with this case.

3d.—Defendant has proven by the testimony of Dr. D. J. Dixon, a veterinary surgeon who has graduated from the American Veterinary College, New York, and who assisted the defendant in the operation performed on plaintiff's horse, that the casting of the horse, and all things that were necessary for the surgical operation, were done and performed in the manner always followed and employed by expert and experienced veterinary surgeons, and that the defendant was guilty neither of malpractice or negligence in the operation performed, and he agreed in the diagnosis made by the defendant and testified that the struggles of the animal after being cast broke its back; and he further testified that it is not an uncommon thing for such accidents to happen during surgical operations on horses, without any fault or miscarriage of the veterinary surgeon performing the same.

4th.—Dr. L. McLean, a veterinary surgeon and graduate of an Edinburgh college, Scotland, and who has practiced as such for more than twenty-five (25) years in the United States and elsewhere, testified that in his opinion, as an expert, the defendant, in the conducting of the casting and the surgical operation performed on plaintiff's horse, was guilty of neither negligence or malpractice, but, on the contrary, that the defendant took every precaution and used every means which a prudent and practical veterinary surgeon would have adopted and used in and about such a surgical operation.

5th.—Dr. C. Burden, also a veterinary surgeon and graduate of the American Veterinary College of New York, and a practitioner of twenty-eight years, in the city of New York, testified that, in his opinion as an expert, the defendant used every means which a prudent and careful veterinary surgeon would have used in the casting of a horse and in the performance of the surgical operation testified to have been performed on plaintiff's horse by the defendant.

6th.—Both the plaintiff and defendant testified that the plaintiff's horse for more than four months was unable and unfit for

work or travel, and was suffering from a disease known as cartilaginous quittor, which necessitated the casting of the horse and surgical treatment such as the defendant applied.

7th.—The testimony of Dr. A. F. Martins, a graduate of the American Veterinary College, New York, and who is the defendant in this action, shows that before the operation the plaintiff told him that it was a case of "kill or cure," to which defendant replied that plaintiff should assume that risk, which he did.

8th.—According to the rules of evidence, the burden of proof is on the party charging a veterinary surgeon with negligence or malpractice. (Greenleaf on Evidence, p. 102, Vol. I., 13th Ed).

9th.—Neither the plaintiff nor any witness for him has testified that they were present at the operation performed, and the testimony of the defendant and his experts directly proves that all things were done in and about the casting and the surgical operation upon the horse in question, were correctly done, and in the manner usually pursued and followed by experienced and learned veterinary surgeons.

NEWS AND SUNDRIES.

HOG CHOLERA is causing considerable loss in Illinois.

THE SWINE PLAGUE is existing in Pennsylvania, near Reading, Berks County.

PROLIFIC COW.—A cow owned in Washington County, Pa., has given berth to five calves inside of a year—twins and triplets.

TEXAS FEVER, about which there was such a scare among farmers and breeders a month ago, is now said to be subsiding.

A REMEDY FOR TRICHINOSIS.—Dr. J. M. Basten claims to have successfully treated four cases of trichinosis with large quantities of glycerine. The treatment is based upon the fact that immersion in glycerine proves fatal to the parasite.—*Journal of Materia Medica*.

SALTING TRICHINOSED MEAT.—Salting, M. L. Fourment asserts, is not necessarily fatal to trichinæ imbedded in meat.

These parasites may live in salt provisions for fifteen months. Salting, indeed, often serves to preserve the vitality of trichinae, as it protects them to some extent from the destructive influence of heat.—*American Cultivator*.

THE CATTLE QUARANTINE.—Mr. Sanders has just returned from his Eastern trip, tired and worn out from the constant travel of the past three weeks, in the discharge of his duties upon the Treasury Cattle Commission. The Canadian quarantine, at Quebec, has been visited, and its practical workings carefully studied by the Commission; sites have been selected for quarantine at Portland, Boston, New York, Philadelphia and Baltimore, subject to the approval of the Secretary of the Treasury, and accommodations for importers at these points will speedily be provided at Government expense. The Commission will as soon as possible, prepare regulations for the government of these quarantine stations, and the Secretary of the Treasury and the Collectors of the ports above mentioned, will be relieved from what has been, for the past two years, a constant source of annoyance to them, on account of the attempt to enforce a quarantine without any provisions for the preparation of suitable quarters for the animals to be quarantined.—*Breeders' Gazette*.

INOCULATION OF BOVINE TUBERCULOUS MATTER IN MAN.—Two Greek physicians have recently made a direct experiment to see whether bovine tuberculosis could be inoculated in man. The subject of the experiment was a common laborer, who, in consequence of arterial occlusion, was slowly perishing from progressive gangrene of the leg. In other respects the patient was healthy and a careful examination showed that the lungs were in normal condition. As he refused to submit to the amputation of the limb, pronounced necessary to save his life, his medical attendants decided to test, by direct experiment, whether tubercle can be propagated from phthisical cows to man by inoculation. A quantity of tuberculous matter was accordingly injected into the circulation, whether with or without consent, is not specified. The man lived about six weeks, then died of the blood-poisoning inseparable from progressive gangrene. The autopsy disclosed

the existence of well-defined tuberculous deposits, without abscess or other disease of the pulmonary organs, very small, evidently very recent, and, as the daring experimentalists argued, the direct result of the inoculation.—*Medical Record*.

NEW VETERINARY SCHOOL.—Dr. C. P. Lyman, F.R.C.V.S., late Veterinary Surgeon to the Agricultural Department in Washington, and well known to the profession for his investigations in pleuro-pneumonia, at home as well as abroad, has been appointed Professor of Veterinary Medicine to Harvard Medical College, where a new veterinary school will be opened this fall. The veterinary students will be requested to attend three years. The veterinary branches will be taught in the various departments of the university, but the special theoretical and practical instruction will receive attention in the newly formed department of veterinary medicine, under the entire supervision of Prof. C. P. Lyman.

ANOTHER RESUSCITATION AND REMOVAL.—The New York College of Veterinary Surgeons has removed from the former college building to the College of Pharmacy, in East Twenty-third Street, where the fall session will open on the 4th of October, the lectures of the College of Pharmacy taking place in the evening, and those of the College of Veterinary Surgeons in the morning and afternoon. The arrangement is a convenient and fortunate one for both parties. The faculty remains unchanged, and in addition to the regular corps of professors, a large staff of special lecturers has been secured by the efforts of President Rawson; and the veterinary students will also have access to the practical chemical course of the College of Pharmacy.—*Medical Record*.

A STEP FORWARD.—The *Prairie Farmer*, one of the most valued of our exchanges, comes to us under the name of the *Peoples' Illustrated Weekly and Prairie Farmer*, and changed in form to sixteen pages. The illustrations are profuse and elegant, the reading matter most varied and interesting, consisting of stories, sketches, humor, news, and editorials on agriculture, horticulture and current topics. It will undoubtedly commend it-

self more than ever to the intelligent public. While in size, illustrations and reading, it is abreast with periodicals selling at \$4.00 per year, the price remains at \$2.00 per year, or five cents per copy. Address Prairie Farmer Publishing Company, Chicago, Ill.

EXCHANGES, ETC., RECEIVED.

HOME.—Rural New Yorker, Medical Herald, Turf, Field and Farm, Ohio Farmer, American Agriculturist, Medical Record, Breeders' Gazette, Prairie Farmer, American Cultivator, Country Gentlemen, National Live Stock Journal, &c.

FOREIGN.—Veterinary Journal, Veterinarian, Clinica Veterinaria, Archives Veterinaires, Recueil de Medecine Veterinaire, Journal de Zoötectnie, Australian Veterinary Journal, &c., &c.

JOURNALS.—Prairie Farmer, Our Dumb Animals, Minnesota Farmer, Louisville Farm and Fire Side, Peoples' Weekly, Home Farm, Iowa Farmer.

COMMUNICATIONS.—P. Z. Colsson, J. Hopkins, M. R. Trumbower, O. H. Flagg, W. Manz, E. R. Evans, J. C. McKenzie, N. S. Townshend, M.D., S. V. Ramsay, O. L. Hendershott, J. Stickney, B. McInnes, R. McLean, G. C. Faville, W. Cutting, C. H. Peabody, Geo. Bailey, R. Wood, W. Bryden, W. F. Derr, J. B. Galt, L. H. Tourtelotte, G. Agersborg, G. Kidney, J. F. Winchester, J. C. Michner, N. E. Rheinhardt, W. Zuill, J. Rice, C. Crowley, E. F. Thayer.

INSTITUTIONAL RECORDS FOR 216044

1. Name of Institution: [Illegible]
2. Address: [Illegible]
3. City: [Illegible]
4. State: [Illegible]
5. Zip: [Illegible]

6. Date of Birth: [Illegible]
7. Sex: [Illegible]
8. Race: [Illegible]

9. Education: [Illegible]
10. Occupation: [Illegible]

11. Marital Status: [Illegible]
12. Number of Children: [Illegible]

13. Date of Admission: [Illegible]
14. Date of Discharge: [Illegible]

15. Reason for Admission: [Illegible]
16. Reason for Discharge: [Illegible]

17. Date of Death: [Illegible]
18. Cause of Death: [Illegible]

19. Date of Burial: [Illegible]
20. Place of Burial: [Illegible]

21. Date of Cremation: [Illegible]
22. Place of Cremation: [Illegible]

23. Date of Interment: [Illegible]
24. Place of Interment: [Illegible]

25. Date of Exhumation: [Illegible]
26. Place of Exhumation: [Illegible]

27. Date of Reinterment: [Illegible]
28. Place of Reinterment: [Illegible]

29. Date of Final Disposition: [Illegible]
30. Place of Final Disposition: [Illegible]

31. Date of Final Disposition: [Illegible]
32. Place of Final Disposition: [Illegible]

33. Date of Final Disposition: [Illegible]
34. Place of Final Disposition: [Illegible]

35. Date of Final Disposition: [Illegible]
36. Place of Final Disposition: [Illegible]

37. Date of Final Disposition: [Illegible]
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AMERICAN VETERINARY REVIEW,

NOVEMBER, 1882.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

BY A. ZUNDEL.

(Continued from page 270.)

LAMINITIS.

II. *Termination and Complications.*—Well treated, laminitis is generally of short duration, and ends in three or four days by *resolution*. Sometimes, however, this is not accomplished until a later period, even towards the tenth day, though cases of this character are rare; and even when resolution proceeds slowly, some lesions in the foot may be looked for, and chronic laminitis will probably result. Resolution in acute founder is marked by the gradual disappearance of the local and general symptoms. In some subjects, the improvement is quite rapid from day to day, and the form of termination is known as *delitescency*. Laminitis ending in resolution is not usually followed by alterations in the horny box or the tissues which it covers.

When the congestion which constitutes the disease terminates otherwise than by resolution, it is always followed by accidents of varying character. Some of these may have a happy termination, but in the end are more or less likely to be followed by a deformity of the horny box, to which the name of *chronic laminitis* is given. Before entering upon this, however, let us examine the various complications which may follow acute founder,

and study in succession: the *hemorrhage, inflammation with exudation, suppuration, gangrene, consecutive arthritis, metastasis*, and lastly *chronic laminitis*. Resolution is most commonly met with in the ox. Sometimes the separation of the hoof by suppuration occurs, and chronic founder is not observed in that animal. It is seldom that seedy toe is observed.

a.—Hemorrhage, or apoplexy of the reticular tissue, is due to the rupture of the excessively distended capillaries, when the extravasated blood either infiltrates into the meshes of congested tissue, or spreads around it, and penetrates between the podophyllous and keraphyllous lamellæ, filling up the spaces at the toe, the mammæ and the anterior parts of the quarters, the os pedis being pushed back by the pressure of the incompressible fluid. The pain is then very great; the blood continuing to separate the tissues, often oozes at the coronary band.

If this last sign is absent, a groove may be made with a drawing-knife in the region of the toe, behind the commissure of the sole and of the wall. If we meet with a cavity, resulting from the extravasation of the blood in the podophyllous and keraphyllous space, or if blood flows out from it, the true nature of the complication becomes at once apparent. This mode of exploration is generally difficult, as the animal in pain does not readily allow his feet to be raised, and, as the other foot cannot sustain the entire weight of the body, the horse easily falls down. It is sometimes necessary to throw the animal, in order to make this exploration, which very often becomes necessary if we would know accurately the progress of the disease.

b.—Inflammation, with fibrinous exudation, or pseudo-membranous formation on the surface of the podophyllous tissue. The transudated fibrine mixes with the hoof, secreted by the podophyllous tissue, and this matter separates that structure from the keraphyllous laminae, especially at the anterior part of the region. Again, in chronic laminitis we find this abnormal secretion pushing the os pedis forcibly backwards and separating the toe of the bone from that of the hoof, and thus producing a pain still greater and more violent than that produced by the laminitis and the hemorrhage. These pains are often so intense

that they give rise to an access of furious vertigo. But pains, even when of an exaggerated degree, indicate simply the presence of the exudative form of laminitis. It is not a positive sign; the foot must be explored at the toe, where, in the vacuum which exists between the horny lamellæ is found, more or less abundantly, a citrine serosity of a slightly reddish color. Sometimes this serosity oozes between the hair and the hoof, in consequence of the separation of the tissues at the coronary band, and appears in the form of a thin, reddish foam, about the band itself.

c.—*Suppuration* between the wall and the podophyllous tissue is a complication more rare than the others, but which, however, has been observed, especially when laminitis is traumatic. We have seen it appear under the sole and separate it entirely from the tissues underneath. In these cases, the pain is always very great, and the living structures are pressed beyond measure. Standing is impossible, and the animal continues lying down, or, under the influence of the pains, constantly moving from one leg to another, balancing himself, so to speak. There is no relief for him until the suppuration has shown itself between hair and hoof, when it oozes outward at the coronet. Relief, however, may also be obtained by making an opening at the toe with the drawing-knife. This complication often results in the entire separation and dropping off of the hoof. Cases have been observed when this accident has taken place as early as the third day (Lafosse, Stanley.) Gillmeyer has seen a new foot grow out entirely, but this requires a long time.

d.—*Gangrene* of the sub-horny tissues sometimes takes place, though seldom, under the influence of the excessive pressure, especially when there is sub-horny exudation. The violent pains then cease suddenly; the resting becomes more solid; the movements take place without difficulty. But at the same time, the physiognomy of the patient becomes anxious and contracted; the pulse becomes small and difficult to count; the temperature of the body diminishes; the animal has a trembling gait; is indifferent to any excitement; he is prostrated, and soon he ends by septicemia. The hoof then often drops off, and the sub-horny tis-

sues are seen to be of a bluish-brown color, without consistency, but with a very foetid odor.

Volpi thought that laminitis was the inflammation of the articulation of the foot; but this *arthritis*, if it exists (a fact which is rare), is not a consecutive phenomenon, but a complication. The inflammation does not remain limited to the reticular tissue; it extends also, and consecutively, to the contiguous structure, spreads to the tendons and articular ligaments, even penetrates to the synovial capsules of the articulation of the third with the second phalanges, and may also react upon other parts of the organism. The ankylosis of the articulation of the foot with that of the coronary joint are complications somewhat frequent, as well as that of the ossification of the cartilages of the foot.

f.—Metastases have been often observed, and when accompanied by intense fever have been noticed as complicated with serious diseases of the chest, especially of pleuro-pneumonia. At other times it has been the intestines to which the metastasis has transferred the disease, in which case there is, in most instances, constipation of the bowels. Enteritis, however, is seldom observed, notwithstanding what has been said on the subject. This metastasis has also been seen toward the lumbar region, and this is much more commonly believed from the fact that there is more motion at the hip than at any other joint during locomotion, and also because the back and the loins are more or less arched. In fact, laminitis has been by some designated as an affection of the loins; some have looked upon it as a rheumatism of that region. All these errors have originated in the peculiar motion of the animal while walking, or of its peculiar mode of resting when standing still. We have also observed an attack of complete myelitis as a complication of laminitis.

*g.—*The most common complication met with in *chronic laminitis* is an affection which we might have treated as a special subject had we not, upon principle, considered it as a sub-inflammatory state of acute founder of the foot. An attack of laminitis which has not ended by resolution in five, ten, or fifteen days at

most, takes a character of persistency which, in most cases, ends in absolute incurability. To properly study chronic laminitis we must observe it when the alterations which characterize it are accomplished. When we have completed the consideration of the pathological changes we will examine the intermediate period, and discuss the mechanism by which these alterations take place in relation to the pathological anatomy.

The first thing observed is the change of form in the hoof. The nail of a horse's foot easily recalls the form of a Chinese shoe. (Knollhuf of Germany.) The hoof seems to have lost its varnish and its suppleness in the points corresponding to the diseased parts. It is, besides, brittle, and seems to have lost part of its connection with the remaining parts of the foot, and there is a change in the direction of the wall, the fibres of which, instead of being oblique to the ground, assume an almost horizontal direction. The foot seems as if flattened from above downwards, and the lines which bound its surface form a well-marked obtuse angle with that of the coronary region. The anterior wall of the foot also forms a well-marked projection forward, from which results a great exaggeration of the antero-posterior diameter of the nail with the transverse diameter and the oval form of the horny box. The external surface of the wall, instead of being smooth, as in physiological conditions, presents, on the contrary, a roughened appearance, which results from the presence of circles of ridges and circular grooves, placed one above the other and extending from one heel to the other. A remarkable peculiarity is here observed in the fact that in the anterior part of the nail the circles are quite near each other, while, on the contrary, upon the lateral parts they are separated by much wider grooves. When, then, at the toe, the wall has some difficulty in growing downwards, on account, probably, of the internal adhesions between the podophyllous and keraphyllous tissues; the heels, on the contrary, grow without difficulty, and thus obtain a relative height superior, and sometimes even equal, to that of the toe. Often at the mammæ and quarters of the foot contractions are seen, and longitudinal grooves running from the coronary band to the plantar surface, reminding one of the lesions met with in encastelure.

Considered on the side of the inferior face the old foundered hoof offers four remarkable lesions. Besides its oval form, a disposition altogether different from that of the normal state, the sole is convex in all the anterior part of the plantar region, especially at the point of the frog. There exists at that point a transversal tumor or enlargement, projecting sufficiently to exceed in height the inferior border of the wall. The solar sheet has been pushed outward by the pressure against the superior face from the contents of the horny box, and the foot is convex. This convexity never equals the entire extent of the foot, the deformity ending at the boundary of the inferior border of the bars, beyond which and backwards are found the cavities of the lateral lacunæ of the frog, so much more elevated as the heels are also higher. The centre of this tumor or enlargement of the sole is often flexible under the pressure of the finger, and generally bleeds easily on the application of the sharp tools of the blacksmith. It is not rare to see the sole perforated through and through and showing the inferior border of the os pedis projecting through the border of the bone, which then soon becomes necrosed. This is the result of the excessive displacement of the os pedis and of the strong pressure upon the velvety tissue against the sole-tissue, which is atrophied or even destroyed. This is an ulcerating wound, somewhat semi-lunar, secreting a very offensive pus, with granulation and some proud flesh, or even separation of the sole.

Between the sole and the wall the line of demarcation is no longer so well defined as in the normal state. At the toe, the mammæ and the anterior part of the quarter, there is an excavation formed of softer horn of bad nature and less identified with the true horn of the wall and of the sole. A complete vacuity is often found, a cavity around the internal face of the wall at the toe and at the mammæ of varying depth and size, but always larger at the inferior than at the superior end of the foot, where it gradually diminishes, and often contains a dry, granular mass, resulting from the drying of the blood, and the dried plastic lymph, mixed with small, horny, pulverized masses. This cavity is formed in front by the healthy wall and posteriorly by a new wall due to the secreted hoof thrown upon the podophyllous

tissue; this is called *seedy toe*. This double wall is observed especially after laminitis of the hind feet; it is more common in the donkey and the mule; it is also noticed in horses with small feet, as in those of Oriental breeds.

The deformities of the horny box due to chronic laminitis are not in all cases identical in their character; there are degrees in them, and consequently they vary in their features, which variations are due to the duration of the disease and its intensity, and also, according to H. Bouly, to the primitive form of the diseased foot. In a case of chronic founder of the forefeet one may often notice a difference between the deformity of the left and that of the right foot. The deformities may take place at various times, and one may find a well-marked case of seedy toe while as yet the wall has preserved its normal oblique direction and shown only rudimentary ramy appearances. Again, the wall may have undergone changes in its direction only at the new hoof, which grows from the coronary band; there is then formed between the old wall and the coronet a circular groove, sometimes called the *digital cavity*, the deformities of the wall taking place only as it grows down. At times, also, instead of the groove, there is a ridge of horn at the coronary band, originating in the hyper-secretion of the horn, which grows also downward. And, again, there are cases where there is seedy toe and still no well-marked alteration of the shape of the wall of the sole.

Chronic laminitis is always accompanied with more or less lameness. There are cases, however, where it is missing; for example, in seedy toe. Ordinarily the foot is raised from the ground with a convulsive motion, as may be well observed in donkeys and mules, which animals rest their feet on the heels. This soreness diminishes with time, as the foot, assuming its new form, offers a wider space to the sub-ungulated tissues and presses less upon them, these tissues having at the same time become somewhat atrophied. In cases of hernia of the os pedis the resting of the foot on the ground is almost impossible, the animal being afraid to bear his weight on the sole. The heat and the pain of the feet are less marked. The percussion is louder in

case of seedy toe, while it is duller when the space between the wall and the reticular structure is filled with hoof of new formation. This percussion is very painful in case of keraphylocele. Unless there are serious lesions, chronic laminitis is not accompanied with fever.

(To be continued.)

AN INQUIRY

INTO THE ETIOLOGY AND PATHOLOGY OF THE VENEREAL DISEASES OF MAN AND OF THE LOWER ANIMALS.

BY CHARLES F. RING, M.D.

(Continued from page 282.)

THE NEW VENEREAL DISEASE OF SOLIPEDS.

This brings us to a consideration of the last division and closing argument of our study, without which our investigation would not be complete, viz.: To an inquiry into the nature of the new venereal disease of solipeds, and its relation to human syphilis, and hence to glanders.

“For a long time before the communicability of glanders to man was recognized,” writes Bollinger, “the disease had acquired a certain interest, as regards its bearing upon human pathology, from the circumstance that Van Helmont (1682) sought to refer to it the origin of syphilis, a theory adopted at a later date by Ricord. The source of this erroneous idea has been traced by Virchow to the report—at one time accepted as true—that glanders first appeared, together with syphilis, at the siege of Naples, towards the end of the fifteenth century. More recent observations have since demonstrated that the virus of syphilis, when introduced into horses, never produces glanders; and it is still more significant that syphilis, as such, is never known to occur in domestic animals.” (*Ibid*, article Glanders.)

It is rather surprising that a veterinary professor and author should make an assertion like this, in the face of so much testimony of an opposite character. He certainly cannot be unacquainted with the new venereal disease of solipeds, to which

Professor Fleming allots so much space—36 pages—in his *Manual of Veterinary Sanitary Science and Police*.

Professor Law, in a much smaller work (*Farmer's Veterinary Adviser*, p. 46), speaks of a serious constitutional disease of a venereal nature existing “in the horses of Arabia, North Africa and Central Europe, bearing a strong resemblance in many points to syphilis,” and of a comparatively recent origin.

Professor William Williams treats of this new disease of the horse under the title of “*Maladie du Cõit*,” and says, “It was first seen in Russia in 1796, and that it has since invaded Africa, Egypt, and the majority of the European countries. No mention, however, has been made of it in Great Britain, Spain, or Belgium.” (*Veterinary Surgery*, second edition, Vol. I, p. 249.)

The statement of Bollinger, “that the virus of syphilis, when introduced into horses, never produced glanders,” is, in weight of argument, about as insufficient as would be the assertion that, as the poison of syphilis never produced a disease like the epidemic, it hence never could have been derived from it.

But we shall see how far, even in this apparently secure position, Bollinger is likely to be sustained by the evidence in the case.

Fleming gives a very comprehensive account of the geographical distribution and history of this new disease, only a small portion of which we have room here to quote. He says: “This is a malady which has only come into notice within a comparatively recent date, and we cannot do better, in attempting to define its geographical limits, than give a brief sketch of its history. The first notice of the disease is that given by the German veterinarian, Ammon, in 1796 and in 1799; he observed it in the district of Trakehnen, North Prussia, affecting mares and stallions. It persisted in this locality until 1801, when Count Lindenan, Master of the Horse to the King of Prussia, caused it to be carefully studied by Reckleben; and two years afterwards (1803) Ammon and Dickhauser gave an excellent description in *Tenneker's Gazette* (Vol. III). From 1801 the malady disappeared from Prussia, but extended northward, causing much loss in Lithuania, and returning again to Trakehnen in 1807, where it once more came under the cognizance of Ammon.

General Daumas, author of the "Chevaux du Sahara," alludes to the frequency and ravages of the disease among the horses of the tribes in the province of Constantine; and Baujol, another army veterinary surgeon, reports it as causing great havoc among the horses in the Bhiras tribe. In 1852 it carried off a large number of mares in the circle of Bon-Arreridj, and in 1853 it prevailed in the circle of Setif. It was not until the spring of 1851 that it revealed itself in France, among the brood mares in the plain of Tarbes, where it for the first time attracted the attention of French veterinary surgeons, being chiefly studied by Roturier and Louchard, military veterinary surgeons, and by an official commission. In 1851 the malady was located in thirty-one communes around Tarbes, containing 1,874 mares. In December of that year Louchard recognized it in 127 mares which had been put to government stallions and to stallions belonging to private individuals. Out of the total number, fifty-two died. It had nearly ceased in the following year.

With regard to the origin of this disease in France, Trelut, veterinary surgeon to the stallion depot at Tarbes, in two able memoirs on the subject, traces its advent to the importation of a stallion from Syria in 1851, and again by two other stallions from the same country in 1861.

He asserts that it was, perhaps, perpetuated in the south of France, because it there found itself in a climate resembling that of Syria, where it nearly always prevails; and also because no steps were taken to thoroughly eradicate it.

It has not been witnessed as yet in England, Belgium, Italy, Spain, or Denmark, nor in countries beyond Europe, Asia, or Africa, so far as I am aware; but there can be no doubt that if diseased stallions or mares are imported to those regions now exempted from its effects, it will appear there, as it has done in Russia (where it is frequent and violent, particularly in the southern governments), Germany, Hungary, Bohemia and France." (*Ibid*, Vol. II, p. 303.)

CHARACTER.

"This disease is peculiar to solipeds—asinine as well as

equine ; it is contagious, and is transmitted in the act of copulation. It chiefly affects the generative organs, though it is not confined to these, but produces serious general disorders of a peculiar character, which most frequently terminate in death. It is more of a chronic than an acute malady ; its course is slow and remittent, and affecting more or less every organ in the body, it produces a state of marasmus, hideous in the extreme, before death supervenes.

NATURE.

“ Very little is known of the nature of this affection. Some authorities have imagined it to be allied to human syphilis, basing their supposition on the course of the local symptoms, some of the pathological alterations, and the serious character of these. This idea has been rejected by others, seeing that human syphilis is not transmissible to the horse by inoculation.” * * *

Fleming adds in a foot note : “ The most recent experiments of Horand and Peuch are apparently conclusive that human syphilis cannot be transmitted to the domesticated animals.” This was written in 1874.

“ Klebs, a well-known and thoroughly capable observer, cultivates a spore which he finds in syphilitic blood (apparently a moving bacterium), produces a plant, inoculates it upon an ape, produces consecutive ulcers recalling the ulcers of syphilis clinically and histologically, shows them to Professor Pick, who recognizes their resemblance to syphilitic ulcers, kills the animal, and finds between the dura mater and the skull a material much resembling gumma, and a quantity of organic germs analagous to the forms which had been inoculated upon the animal. Klebs placed a portion of a freshly extirpated syphilitic chancre under the skin of another ape, December 29, 1877. The wound healed without suppuration ; the glands swelled slightly. In six weeks the animal had fever, and shortly afterward a crop of papules came out upon the neck, head and face. The papules were flat, two or three millimetres in diameter, and of brownish-red color. These lesions scaled off, but did not ulcerate ; and the papules, together with the fever, disappeared, leaving no trace. Nothing

new appeared externally, but in five months after the inoculation the strength of the animal failed and it died. Under the site occupied by the papules during life, although no deeper seated disease had then been detected at these points, the skull showed evidences of periostitis and of caries sicca—exactly such changes as are found in man due to syphilis.

“A focus of interstitial fibrous thickening containing spindle cells was found in the lungs, the pleura being extensively thickened over it in a radiate manner. Certain new formations of cells, resembling young syphilomata, were found in the kidneys. Finally, some blood taken from this ape yielded plants looking very much like the fungus which had been inoculated upon the first ape. Other animals, besides the apes of Klebs, have been successfully inoculated with pieces of chancre or its secretion—guinea pigs (Legros, Bradley), monkeys (Depaul), cats (Vernois, Bradley)—and ulcers and gummata produced, leading to marasmus and death.” (Keys, *ibid*, p. 62.)

It is an established fact that these same animals are not very susceptible, even to the poison of glanders. Fleming writes: “With regard to species, it is established that mankind, dogs, sheep, goats, rabbits and mice can be successfully inoculated with glanders. Next to the equine and asinine species (in which the malady runs its course most rapidly), with regard to susceptibility, comes the feline, canine and the human species. The receptivity of the dog is not very great; indeed, not many years ago inoculations with glander virus were so unsuccessful in this animal that it was believed it could not be infected.” (*Ibid*, p. 533.)

Another point of resemblance between the poison of glanders and syphilis that may be suspected is this—that while the dog is perhaps one of the most convenient of animals to experiment on, and is infected with glanders with difficulty, it is noteworthy that syphilis—a milder disease—is not mentioned as having been communicated to it; while the cat—more susceptible to glanderous inoculation—has been successfully infected with the syphilitic poison.

But to return to our main subject again.

CAUSES.

"The primary cause or causes of this disease are as obscure as its intimate nature, though there is no lack of hypothetical reasoning on the subject. Rodlaff gives, as a general cause, an atmospherical, epizootic constitution, which gradually modifies the animal economy, until the evolution of the disease is possible. He also invokes cosmo-telluric influences, and asks if the frequency of the storms in the mountains of Bohemia and Silesia has not contributed to render the malady more common than in previous years. This distinguished veterinarian also believed that hereditary tendency, a catarrhal condition, cutaneous eruptions, betraying a lymphatic dyscracy, were all so many predisposing causes.

Hertwig and Renner attributed its production to fornication or bestiality; and Dumas mentions that the Arabs, believing it to be contagious and incurable, think that the male ass infects the mare, the former acquiring it from the female ass, which is diseased through an abominable offense committed upon it by the Arabs suffering from syphilis, and who fancy that this odious practice will cure them." (Fleming, *ibid*, p. 12.)

This theory is beyond comparison the most plausible and reasonable of the many offered, and we shall follow it out to its close.

There are many theorizers—men of ability—whose minds seem to demand some marvellous conception for a cause; the more marvellous, the more nearly they imagine they are approaching the truth. They remind one of the witness who stated that he had read "Gulliver's Travels," the stories of Munchausen, and the "Flying Wife," including "Robinson Crusoe," and believed them all; but that Wirt's "Life of Patrick Henry" was a little more than he could stand.

SYMPTOMS.

The symptoms of this equine disease are exceedingly numerous, and we can mention only a few of them—the most important—in this place. We may say here—though it will be inferred—that it is our opinion that this venereal disease is only glanders

(or a syphilis) in a mild form, which in time comes to assume its old proportions, as will be seen further on.

“In France, the symptoms of the disease in the stallion do not appear to be so marked as in the mare, and not unfrequently several weeks pass away without any indication of its existence being manifested.”

Besides the “indurated sores” of the genital organs, swellings of submaxillary, axillary and inguinal lymphatic glands, the constitutional manifestations are very remarkable.

“The general symptoms appear in the following sequence Emaciation, lameness, nervous derangement, paralysis, marasmus, glanders and farcy, and death. The debility is so extreme that the victims can no longer stand, and their hinder legs dropping under them, leaves them sitting like a dog, vainly endeavoring to maintain their equilibrium; the face haggard and the countenance pinched; the sunken eyes, expressive of terrible agony, which is made all the more sad by the futile attempts to rise—we have a startling picture of the effects of an equine venereal disease.”

And yet we are told that “syphilis, as such, is never known to occur in domestic animals.” Call this malady by what name you will, it certainly is a constitutional disease of a venereal origin, which, had we space to quote from its numerous symptoms and pathological anatomy, would be seen to invade almost every tissue and organ of the body.

Its identity with syphilis is complete in every particular, so far as the constitutional difference of the horse will permit, and any one who studies the two diseases carefully must come to the same pathological conclusion. The reader will please to bear in mind that “glanders and farcy not unfrequently accelerate the final catastrophe.” Do any symptoms of this disease resemble glanders? Nearly all of them do, except the nervous phenomena, which are most like those of syphilis, due, we suspect, to a more rarification or potentization—if we may so call it—of the poison. These latter symptoms, in the human subject, did not manifest themselves until of late years, owing to the disease becoming milder.

As glanders in the horse generally gains entrance to the sys-

tem through the nasal passages, and this venereal disease through the genital organs, the discharge from these respective parts should bear some points of resemblance if the diseases are analogous or the same.

In the former case, "this discharge may be at first transparent, and at a later period opaque and viscid, collecting around the margin of the nostril. * * * The character of the discharge is noteworthy. As has been said, it is glutinous and adheres to the skin and hair around the nostrils, forming soft, greasy-feeling crusts of a deep brown color, which adheres to the fingers when touched," etc. In the venereal disease, "there is a vaginal catarrh, the matter being viscid, glutinous—it adheres to the hair, soils the tail, perineum, inner surface of the thighs and the hocks, and in drying forms yellow or brownish crusts." (Fleming, *ibid*, Vol. I and II, pp. 486, 316.)

As striking a resemblance can be pointed out between the chancre of these diseases, but this would lead us too far; and our object so far has aimed to be only suggestive; to create enough interest, merely, in our subject to induce those in favorable positions to institute—to test the validity of our views—the necessary experiments.

(*To be continued.*)

FOWL CHOLERA AND THE GERM-THEORY OF DISEASE.*

BY D. E. SALMON, D.V.M.

No longer than a year ago, there were so many criticisms of the germ-theory continually appearing in our medical and scientific periodicals that the writer felt it a duty to place the evidence bearing on the question before the working microscopists of the country in such a connected form that they could scarcely fail to appreciate it. Accordingly the investigations of the best studied of the contagious fevers, viz., charbon, were reviewed in two articles published in the *Journal* of April and May, 1881, and the conclusion reached that there could no longer be a shadow of

*From *The American Monthly Microscopical Journal*.

doubt of this disease being produced by the multiplication within the body of the *Bacillus Anthracis*, a variety of bacteria.

After patiently waiting a year to allow those who oppose the germ-theory ample time to place their objections to this evidence on record, without any such objection appearing, it may be concluded that, up to this time at least, there are no substantial grounds for doubts. Still, we occasionally see elaborate articles intended to prove that the bacteria of contagious diseases are nothing more or less than one of the forms assumed by coagulating fibrin—that the micrococcus is granular fibrin, the bacillus, thread-like fibrin and the spirillum spiral fibrin;* and although it may now be assumed that a majority of our scientific men are convinced of the truth of the germ-theory, the evidence upon which it rests is yet entirely too slight, if we except the single disease alluded to.

As a working theory, we have seen more light thrown upon contagious fevers by its use for half a dozen years than was gained before in the whole history of medicine; but notwithstanding this, its true friends do not care to press its acceptance in advance of the actual results obtained by scientific investigations. Charbon, as we have seen, is the foundation of our structure, and we may feel certain that this foundation is secure, and will never crumble beneath the successive additions that may, from time to time, be placed upon it. Has the time arrived, therefore, when we may confidently announce that the first story of the edifice has been reared upon the foundation, and that it is so well finished as to be perfectly safe for use, and to serve in turn as a support for future work? The writer believes that this time has come, and will proceed at once to a consideration of the work accomplished.

The domesticated fowls of various countries, including our own, are subject to a most virulent and fatal disease, which, year after year, almost depopulates the poultry yards of vast sections, and causes enormous aggregate losses. This disease may be communicated to healthy fowls by placing these in the same enclosure with sick ones; by feeding them with the flesh or blood of

*Rollin H. Gregg. M.D. No Bacteria in Diphtheria.—*The Medical Record*, Feb. 1, 1882.

recently dead birds ; or by introducing portions of the flesh or blood of very sick or dead birds beneath the skin. The disorder is not accompanied by eruptions on the skin, but is characterized by elevated temperature, dullness and loss of appetite, often deep somnolence, by paleness about the fleshy part of the head, and by yellow coloration of that part of the excrement which is separated by the kidneys. The most marked and constant lesion is an intense congestion of the liver, with enlargement and softening ; and there are frequently other complications which, for the purposes of this communication, it will be unnecessary for me to enumerate. My aim is simply to establish the fact that this is a virulent internal disease, or in other words a contagious fever.

A little over two years ago, M. Pasteur presented his communication on this subject to the Academy of Medicine,* and shortly afterwards the writer began his investigations of it, which were continued until the present, and are not yet entirely finished. The facts demonstrated by these researches, which bear upon the etiology of the disease, are briefly as follows :

1. *The virulent liquids of the fowl's body contain micrococci.* If we examine the blood or tissue-juices of a bird nearly dead of cholera, or from one that has recently died, we may find a considerable number of granules having the dumb-bell form, or some apparently single globules, caused by one part being directly beyond the other in the line of vision. These bodies are extremely small, less than one-thirty-thousandth of an inch in short diameter, and perfectly motionless. If the microscopist relies on this examination alone, however, it would not be strange if he remained in doubt as to the nature of the granules which he has discovered. They might very reasonably be considered as granular fibrin, as the debris of broken down cells, or as particles of uncertain nature which have gained entrance from the atmosphere. It will be found difficult in many cases, if not generally, to obtain the bacterial reaction to coloring matter by staining with analin, violet, or other agents.

*L. Pasteur. Sur les maladies virulentes et en particulier sur la maladie appelee vulgairement cholera des poules.—*Bulletin de l'Academie de Medecine*, 1880, p. 121.

Fortunately, the microscopist of to-day has the means of accurately determining the nature of such granules—this is accomplished by their cultivation in suitable media. Pasteur demonstrated that these granules might be cultivated in a liquid obtained by simmering the muscles of fowls in water and afterwards filtering to transparency and sterilizing by heat; this I have confirmed by long-continued and careful experiments.

Can we be certain, however, that the organisms which we are cultivating really existed in the blood of the fowl while circulating in the veins, or may they not have gained entrance from the air? This objection is more pertinent than many imagine, for, notwithstanding assertions, very few persons, taking the world over, have made pure cultivations from virulent liquids. Klein believes that he has done this with the virus of the disease which he calls *pneumo-enteritis* of swine, and which is so well known in this country as hog cholera; but my own investigations do not confirm this, for I have always obtained by cultivation an entirely different organism, being the one which Klein himself discovered in the tissues of affected animals, and which he was led to discard by what I am forced to consider most imperfect cultivation experiments. Even Drs. Wood and Formad are constrained to admit that in their cultivation of the supposed virus of diphtheria if the temperature was varied, a different organism frequently appeared.* These gentlemen selected the cultivation apparatus which misled Klein, and which, to say the least, is hardly suited to investigations of this delicate nature.

The writer has used an apparatus of his own, which will be fully described in his report to the Department of Agriculture of 1881, and which in his hands has given the most complete satisfaction. Instead of using one or two drops of liquid for a cultivation medium, the usual quantity is half an ounce; and this has been increased for special purposes to a quart. A small fraction of a drop of virulent blood added to such an apparatus, with suitable precautions for excluding atmospheric bacteria, will cause

*Drs. H. C. Wood and H. F. Formad. Report on Diphtheria.—*Supplement No. 17, National Board of Health Bulletin*, p. 6.

the limpid liquid which it contains to become opalescent, or turbid, within twenty-four hours, and a microscopic examination shows this turbidity to be due to vast numbers of the dumb-bell forms already mentioned. If the blood is obtained and introduced with proper care, it will be in vain for us to search our preparations for other forms of bacteria, and no matter how long we preserve our cultivations, or at what temperature we keep them, the result will be the same. Having made a pure cultivation of the organism, if our apparatus is perfect it will remain pure indefinitely.

With a single cultivation and without other tests, we might be uncertain whether the bacterium obtained really existed in the blood, or whether it was of atmospheric origin; but when we have repeated the experiment a considerable number of times, always obtaining organisms morphologically the same, and these very different in essential characteristics from the bacteria which multiply in similar liquids after exposure to the air, we are warranted in concluding that they were not introduced from the air but from the blood.

Now, when we have proved that a certain bacterium exists during life in the blood of affected birds, is that good evidence that the disease is caused by such organisms? Evidently, it is very insufficient, but fortunately we are able to satisfy the most fastidious on this point, by additional facts.

2. *Liquids in which bacteria are cultivated produce the disease by inoculation.* If we add one-fourth of a drop of virulent blood to five hundred drops of cultivation-liquid, and place this in an incubator at 90 deg. Fahr. for twenty-four hours, or until the development of micrococci has produced turbidity, we find that inoculation with this liquid as surely produces the disease, and that this is as fatal as when virulent blood is the material used. But there is a point here that is nearly always overlooked by those who make this class of investigations: perhaps this cultivation, as we call it, is only a dilution of the original virus—a dilution not sufficient to destroy its activity. We have used a half-ounce or more of liquid, and have made a dilution of 1 to 2000—a dilution much greater, it is true, than is usually made by those

who cultivate in but a drop or two of fluid in a small cell—but it is our object to give a scientific demonstration, and not to follow in the uncertain footsteps of those who have preceded us. To test the extent to which the virus may be diluted, we inoculate healthy fowls with a drop of various dilutions of our cultivation-liquid, obtained as above, and which may be called the first generation, and we find that a dilution of 1 to 2000 almost invariably produces death. The virulence of a first cultivation then proves nothing, and we must stop to inquire the extent to which virulent liquids may be diluted and still prove fatal when there is no opportunity for reproduction. Experiments show that death is frequently produced by dilutions of fowl cholera virus of 10,000, but rarely by those of 1 to 20,000 or 1 to 40,000, and seldom, if ever, by greater dilutions.

We are now in a position to judge if the virus really multiplies as we know the bacteria do. We have found the extent to which the first generation must be diluted to destroy its virulence and we make a second cultivation which dilutes the first as the first dilutes the blood; after twenty-four hours we start a third cultivation, and now the first is diluted in the proportion of 1 to 4,000,000, or far beyond the extent to which it was found possible to dilute it without destroying its properties when no cultivation was allowed. Have we in this case destroyed the virulence? No, indeed; a single drop of the third, fourth, fifth or sixth cultivation will destroy ten thousand fowls as surely as a drop of the first. The virus has been cultivated then, has multiplied, and is capable of indefinite multiplication. Our liquid swarms with micrococci, and nothing else can be found by the most careful microscopic examination. If we expose virulent liquids to atmospheric germs, putrefaction soon occurs, and their activity is lost. Why has not the same result followed in our cultivation-liquids, if the bacteria multiplying in them were foreign to the virus? Have we not, even here, a strong indication that these organisms are the active principles of the virus—that they produce the disease?

3. *The living bacteria are required to produce the malady.* There are three hypotheses which one must take into account in

determining the active principle of even this cultivated virus: 1. The pathogenic agent may be a soluble ferment. 2. It may be living particles (bioplasm) extremely minute, or having the same refractive index as the liquid in which it multiplies, and therefore invisible. 3. It may be the bacteria to which our attention has already been directed. Pasteur has shown that by filtering the cultivated virus through plaster, the solid particles are removed and the limpid liquid which is obtained is perfectly harmless, even when injected under the skin of susceptible birds in considerable quantities. Objection being made to the filtering as liable to remove some dissolved bodies as well as the solid particles, the same able investigator has given us another and very valuable demonstration. If tubes containing cultivated virus are placed where the temperature is constant, the micrococci are all deposited on the bottom of the apparatus, leaving a perfectly limpid liquid above them. Inoculations with this liquid prove it to be as harmless as that which has been filtered.*

Even this demonstration was insufficient to convince those who oppose the germ-theory—the ferment might be very volatile and escape from the upper layers of the cultivation-liquid, or it is attached to the bacteria themselves, and can only be introduced with them. To meet such objections the writer has carried through an entirely different line of investigation. It was found, after considerable experimenting, that the activity of the virus is destroyed at a temperature of 132 deg. Fahr., if maintained for fifteen minutes—a temperature so low that few, if any chemical bodies would be affected by it if protected from atmospheric gases and evaporation. Small glass tubes were, therefore, completely filled with virus, hermetically sealed, and placed for a quarter of an hour in water of this temperature. Here there was no chance for any constituent to escape, and the dead organisms might be introduced into the inoculation-punctures with whatever chemical products there might be adhering to them. Now, what is the result of inoculations with virus treated in this way? Experience shows that a million times as much as produced death

**Bulletin de l'Academie de Medecine*, 1880, p. 530.

before, is now unable to cause the least sign of disease. The liquid is no longer capable of producing the affection.

Still, our opponents may maintain the demonstration more or less imperfect—the activity of the virus is destroyed at this low temperature, it is true, but what evidence have we that the bacteria were destroyed rather than the other agents which we have supposed might constitute the active principle. Some bacteria resist a boiling temperature for a longer time than this; others multiply rapidly, and seem to enjoy a temperature nearly thirty degrees above that to which we have subjected our virus. Is it not impossible that the micrococci under consideration were killed at so low a point?

The fact that this virus is destroyed so easily, and that bacteria often resist so high degrees of heat, certainly makes our evidence so much the stronger if we can prove that the micrococci which we have cultivated are actually destroyed at this point; for it would be extremely improbable that an accidentally introduced organism would be destroyed at exactly the same temperature as some unknown agent which was present, and upon which the activity of the liquid depended.

Let us take two sets of the cultivation-apparatus containing sterilized liquids of the proper kind, and to each of these add, with suitable precautions, a minute quantity of a pure cultivation of the micrococci. The one we heat for fifteen minutes to 131 deg. Fahr., the other to 132, and place both in the incubator to await developments. In twenty-four hours the former is turbid with micrococci, but the latter is as limpid as at first; we wait for two or three days, but there is no change in our results. We now inoculate a number of fowls from each apparatus, and find that in those cases where the liquid containing the micrococci is used the birds contract the disease, while those inoculated with the clear liquid are not affected in the least.

Our demonstration is now complete—we have started with the micrococcus and tested each hypothesis without other result than to show that they are both untenable, and after traversing the whole circle of investigation we are led back to the organism as the pathogenic agent without which in a living condition there is no virulence.

We believe, therefore, that the second step in the germ-theory is taken, the second story of the structure finished; and we place the results before the scientific world with the fullest confidence that they will be confirmed and accepted.

• It will be noticed that many of the investigations appear on their face to be rather of a chemical or pathological nature than microscopical, and as such would be out of place in this *Journal*. I beg leave to remind the reader, however, that no one but a microscopist can succeed in such researches—the microscope is necessary at every step, and it has been a part of my purpose to show that the microscopist who undertakes to solve these difficult questions must be prepared to use other apparatus in connection with his instrument.*

FOUR CASES OF RINGBONE, TREATED BY NEUROTOMY.

BY R. HARRISON, D.V.S.

In the April number of the *REVIEW* the operation of neurotomy was recommended as a very favorable method of treating ringbone by M. Nocard of Alfort. Since this report I have operated on four cases, and it may be of interest to report them, as the result in every case was not favorable.

Case No. 1.—Bay mare, 16 hands high, 7 years old, had been lying idle for seven months, on account of extreme lameness; had been fired and blistered previously with beneficial result for a time. When seen, she was so lame as not to be able to put the foot to the ground. The near hind foot was the one affected, the growth extending in front and to the sides, more on the inside than out, giving rise to ankylosis of the coffin joint as well as of the second phalanx.

On the 5th of July she was operated on, and immediately following it, she seemed lamer than before, which was considered to be due to her severe struggles while being cut and during the operation. For several days following she improved steadily, and would even trot quite nicely. A shoe with high heel calkins and

*My investigations have been published in the Reports of the Department of Agriculture.

no toe calk was put on, which improved her gait a great deal. She remained in the infirmary, having gentle walking and trotting exercise every day, until the latter part of the month, when she was sent home, with instructions given to use her carefully for walking work.

About a month after she was reported as lame as ever, and I was desired to see her. I found that she had been worked in a market-wagon, traveling a distance of 32 miles each day. She was quite lame, but when harnessed, after a few yards, traveled as well as ever.

Since the mare has been left with me for the expense of treatment, she is lame, but shows it but little in walking. The irregularity is merely mechanical, and I think she would be well in the country if the land was not rough.

Case No. 2.—A bay mare, 15.3 hands high, 6 years old, had a ringbone as a sequelæ of a toe-crack on the near hind foot. The bony growth was as large as a hen's egg, flattened from side to side, and situated in front of the coronet. Deep firing, repeated six times with platinum needles, was first resorted to, with two months' rest at pasture. By this treatment little benefit was derived. Neurotomy was advised, and was performed. The relief in this case was marked from the first; the wounds healed by first intention, and since then the mare has worked as well as formerly.

Case No. 3.—A brown mare, 7 years old, 14.3 hands high, with ringbones and side bones on both fore feet, was lame on the near one. The bony growth in this case was small, extending from cartilage to cartilage. The operation was performed on both feet with good results.

Case No. 4.—A brown gelding, 10 years old, 15.1 hands high, with ossification of the lateral cartilages and exostosis in front of the coronet on both hind feet. The lameness was greatest in the off foot. The exostosis in both feet was undoubtedly of long standing and had given rise to anchylosis of the first with the second phalanx. Neurotomy was performed on the off foot, and the result was an improvement, but not as successful as could have been desired. It gave rise to a peculiar stilty action.

Case No. 5.—This patient was operated on since the above re-

port was written. It was a bay gelding, 16 hands high, 5 years old, with an exostosis in front of the coronet, well-defined, but of small size. The operation was a complete success. In this case deep firing was resorted to afterwards, so as to check the growth which was of recent origin.

Summary.—It would seem, therefore, that this treatment should not be adopted in all cases with the hope of complete success, for in those cases where the bony growth is extensive and gives rise to ankylosis, either of the pastern or coffin joint, lameness purely mechanical will follow. Where other modes of treatment fail, it should be used, for otherwise the lameness would be greater and the pain attending it more severe. It would be of advantage to fire deeply afterwards, to check the growth and favor absorption of the plastic deposit, which has a tendency to interfere with the action of the joints.

The operation should not be condemned if the patient does not improve at once after the operation has been performed, as the force of habit, especially if the lameness has existed long, will render the animal lame when he first starts off.

EXTRACTS FROM PAPERS

Sent to the Meeting of the United States Veterinary Medical Association.

CEREBRO SPINAL MENINGITIS—FUNGOSUS TOXICUM PARALYTICUS.

BY J. C. MICHENER, D.V.S.

During two weeks of the middle part of April, we had in Hilltown and Hatfield townships, within a radius of four miles, a remarkable outbreak of what in this vicinity is called choking distemper—what is sometimes (I think) miscalled cerebro spinal meningitis. For want of a name, I call it fungosus toxicum paralyticus. You will recognize it by the symptoms. A horse will be in perfect health one hour, the next he will be observed to chew feebly and slowly and feebly drop cuds of masticated hay, unable to swallow. In his efforts to drink he will thrust his nose deeper into the water than usual and go through all the motions of deglutition without accomplishing it, the little water he is able to raise above the bolus of the tongue returning through the nos-

trils. No swelling, soreness, or pain attending his efforts, he persists in trying to drink a long while, only stopping to cough occasionally, as if choked, hence the name choking distemper. He is feeble in his movements; has very little use of his tail; soon goes down, unable to rise, lying flat on his side; legs extended; has occasional nervous paroxysms, striking violently with all his legs; the tongue hangs loosely from the mouth, lips contracted, mouth partly open; stertorous breathing; cold sweat; death. Some cases die in four hours, many in from thirty-six to forty-eight. Those living over the tenth day usually recover, under good management. The paralysis is mostly general, although in some cases it is almost entirely confined to the par vagum, the power of deglutition being lost, but he is still active and strong upon his legs. Other cases lose the use of their limbs, but can swallow perfectly. In rare cases, one front leg will be weak and trembling; in others, one side of the face is paralyzed, the lips drawn to the opposite side. This disease is characterized by absence of inflammatory symptoms, except a congestive form in the last stages of some cases. Pulse about normal, slightly intermittent, weak and compressible; surface of body cold; sweats and tremors.

We have this disease every year, and at all seasons. It is the most common disease of our district. When the paralysis is *general and complete*, they die, and are not many hours about it; when local or incomplete, many recover. Taking one time with another, about half recover under my treatment. In the particular outbreak of which I now write, there were upwards of forty deaths and not a single recovery. It only lasted two weeks. In every case brewers' grains, in a sour condition, were fed to the horses or stored in the barn. All those in the district that did not use the grains escaped the disease, and every horse that ate of that particular car load of sour grains died. Cows were not injured by them. I have known brewers' grains to cause the disease in other instances. In one case a farmer lost all of his horses, five head, from feeding oats that had a smut upon them that could be seen and smelt when they were agitated in the bin. Some of these oats were afterwards fed to horses in three different stables in Philadelphia, and killed them in a like manner. In

many other instances I have been unable to specify the cause. Mouldy barns and those upon meadow banks are the ones in which the disease is most commonly found. My conviction is strong, that by the aid of the microscope the cause could be found, and would consist of fungus spores floating in the air or adhering to the feed. The fumes of burning sulphur have the best preventive, and stimulants the best curative effect. Autopsies, with the unaided eye, are unsatisfactory, no sufficient cause for death being found. The poisonous cause, be it what it will, acts upon the nerve centres, with depressing, paralyzing effect, overcoming and destroying the functions of the bodily organs, without making much alterations in their appearance. We sometimes observe slight congestion of the œsophagus and air passages, and in lingering cases putrescence.

ŒSTRUS OVIS—STRONGYLUS FILARIA.

BY T. T. WINCHESTER, D.V.S.

In the winter of 1882, I was called to see a flock of sheep, with the following history :

The owner bought sixty sheep in the fall of 1880, and it was soon noticed that there was a discharge from the eyes of a few, and they also coughed a little. These symptoms grew gradually worse, and in connection with them there was a discharge from the nose. A few died that winter. In the spring of 1881, some were sold and the rest turned to pasture, some of them coughing and running at the nose. When I saw them quite a number were discharging a muco-purulent collection from the nose, had a hard racking cough, and were very much emaciated, some being unable to walk. Before reaching this stage, they lose their appetite, become dull, have a slow and weak gait, tossing and turning of the head, inclined to butt and push with the head, and fits of frenzy, when death generally results.

Post mortem. The digestive apparatus normal in appearance, with very little fœcal matter in stomach or intestines. On removing and opening the lungs, found in smaller bronchial a large number of fine, white, thread-like parasites from 1 to 1½

inches in length, and considerable bronchitis. The pericardium contained, in one or two instances, from 1 to 1½ ounces of fluid, very clear and transparent. On making vertical section of head, found a quantity of pus around the turbinated and ethmoid bones, the mucous membrane of the same congested very much. In one case the ethmoid was carious and the larvæ were working their way toward the brain.

OSTEO-POROSIS.

BY N. E. REINHART, V.S.

I met this disease in a horse not quite five years old, the property of a gentleman who had never worked or driven the horse hard. To use his own language, the horse never did a day's work in his life. His object was to let him mature and become a horse before he put him to hard work. The first symptoms were hock lameness, and spavin was suspected and treated as such, with apparent recovery. When the other hock became affected, he began to show a defect in masticating his food. He would chew grass and let it fall from his mouth in quids all around him, swallowing none. Fluids could be taken, but feed of a solid form would be dropped. His mouth was examined, and the molar teeth smoothed at their outside edges with a tooth rasp, but there was a fulness of the gums about the front teeth like lampus, in both upper and lower jaw. Osteo porosis was suspected, but as yet there was no enlarged head. It was a puzzle to me, having never met the disease. I gave him tonics, with a view to improve his appetite and invigorate him; washed his mouth with tinct. myrrh and other astringents, but all to no purpose; he continued to grow worse, and the head began to enlarge, and the fact dawned on my mind that here was a plain case of osteo porosis. About this time Dr. James McCoart, of Philadelphia happened to be with me, who confirmed my diagnosis. We told the owner that the horse would not recover, and would perhaps starve to death. About a week after this visit, he got down in the stable and could not rise; when assisted, it was found he could not stand. The owner having been told by us

that he might at any time lose control of any part of his joints, as the bones were in such diseased condition, suspected what had happened and had him shot. I was called to make an autopsy, and found the dorsal vertebræ had separated and was very soft, the bones all soft and easily cut with a knife, and the periosteum easily stripped off; bones porous, like honey-combs. This horse was raised in Central Pennsylvania, on high ground. His ancestors, for several generations, were all healthy. He was owned by an old and experienced horseman, and was well cared for. If any brother in the profession can point out a cause for this disease, and its treatment, he will confer a great favor. This case continued about six months from the time my attention was first called to it.

RABIES IN A MULE.

BY C. W. CROWLEY, D.V.S.

I witnessed a case of rabies in a mule in June last. Its history is as follows: Up to the second day previous to my seeing the animal nothing was ever noticed wrong with him; at this time he was noticed somewhat nervous and irritable. The next day he was sent to be shod, and so far from acting as quietly as he usually did, he became very much excited. Upon the driver going to the animal's head to try to quiet him, he sprang at the man, seized him by the arm and threw him on the floor. Before the mule could be beaten off he had bitten the man severely, both in the arm and leg. After this the mule was so excited and vicious that it was concluded to take him home and bring him back the next day, when it was expected by the blacksmith that he would be quieter. The next day he was no better—if anything, worse—so he was hitched with his mate and driven to the infirmary of the person who was their medical attendant. Here a diagnosis of hydrophobia was made, and the destruction of the animal recommended. But the owner was not satisfied, so I was called to see him, when I concurred with the practitioner in charge, in both particulars. It was intended to have the animal shot in the afternoon, but he died before that measure had been

carried out. The mule at the time I first saw him, at 9 A.M., was furious—biting at everything within his reach. A pail of water was put on a wheelbarrow and shoved near him, but instead of trying to drink, he seized the wheelbarrow and pulled it away from the man who was holding it. In about twenty minutes he became more calm, although perspiring continually and passing slight quantities of urine at short intervals. He died that afternoon about four o'clock.

VENTRAL HERNIA.

BY W. F. DERR, V.S.

On the 4th of June, 1882, I was consulted about a four-year-old colt that had received an injury by getting staked on a fence two years ago. The abdominal muscles were lacerated to a certain extent at the time of the injury, but as the hernial sac was enlarging, the owner thought that there might probably something be done for it.

The hernia extended as far forward as the cartilages of the false ribs, and back towards the sheath, measuring eleven inches in length, five in breadth, and protruding to the extent of about five inches.

After first warning the owner that the operation was a dangerous one, and he consenting to have the animal operated on, I proceeded as follows:

The animal being in a healthy condition, I merely kept him off feed for a few days, in order to get the abdominal cavity as empty as possible with laxatives, etc.

On the 7th of June I had him placed under chloroform, got him on his back, and made an incision carefully through the integument into the sac, right through the centre of the hernia, seven inches in length. The sac was partly filled with omentum, of which I removed a portion with the ecraseur. The walls of the hernia were very much thickened and smooth.

I had a sponge soaked in a weak solution of carbolic acid, and then pressed out and placed in the abdominal cavity. I then

shaved the walls of the hernia all around, and the hemorrhage from it was taken up in the sponge. The hemorrhage was slight, from the scarification of the parts.

I also had a fine spray of carbolic acid—one part to two hundred—played on the parts during the operation.

I removed the sponge by drawing the walls apart while my assistant took it out, it being fastened to a cord.

I brought the parts together with strong metallic wire sutures, of which I put in seven interrupted ones, and let the ends come out through the skin.

I placed a wooden clamp of fourteen inches in length over the whole integument, and had small skewers pushed through this, in order to hold the clamp and let my patient rise.

He suffered considerably for a few days, but nothing alarming. In fourteen days the parts sloughed off, and also two of the metallic sutures came away. On the seventeenth day all the sutures came away, leaving a large, healthy, granulating surface, which healed rapidly with weak solutions of carbolic acid, etc., and tonics internally, so that in a month from the time of operation the wound had healed, leaving a cicatrix the size of a silver dollar, the animal went to work, and the operation a success.

TUMOR OF THE GUTTURAL POUCHES.

BY W. C. BRYDEN, V.S.

A very interesting case was treated and afterwards examined by me for the Boston Fire Department. The horse was attacked with what was supposed to be acute laryngitis. His throat was treated in the common way, with gargles and counter-irritants externally, without improvement, for about six weeks. When I was called in, he stood with his head well up, and could move about freely; but on taking drink or food the greater part returned through his nostrils, which were much injected and covered with filth—the walls of his box being also all bespattered. There was slight swelling of the intermaxillary glands, but the parotids and adjacent parts appeared shrunken, and any effort to

swallow painful and difficult, although he evidently did get some down. In spite of all we could do he became daily more emaciated, when, to put an end to his misery, he was finally killed about three months from the time he was attacked.

The head and neck were brought to me for examination. Careful dissection showed nothing to account for the trouble until the guttural pouch on the left side was reached, when a circular tumor, about two inches in diameter and three-fourths of an inch thick, was found attached to the inner wall. The posterior extremity of the long horn of the os hyoides was also highly inflamed and hypertrophied to three times its natural size.

CEREBRO-SPINAL MENINGITIS.

BY THE SAME.

A small-sized bay mare belonging to Mr. Lam, of East Boston. She stood alone in an old stable, low and damp. I immediately recognized the case as one of spinal—or rather cerebral—meningitis, as described by Prof. Large in *The Veterinarian* some fifteen years ago, and also by myself in the same journal several years later (his description of the disease being at the time unknown to me). She stood rather quietly, but persistently, trying to swallow water; but although the muscles of deglutition seemed to go through the motion of swallowing, the quantity of water in the pail remained unchanged. Next day she went down, and of course I supposed it was all up with her, but as she seemed to rest well, advised the owner to keep at work on her with gargles of carbolic acid solution with capsicum added, stimulating applications externally, and general good nursing. Judge of my surprise, on calling two days afterwards, to find her up, walking around and eating and drinking quite well. About two days after this I was again called, and found her down, unable to get up—this time with regular spinal meningitis (so called); pulse 38; urine and fœces retained, and unable to use her hind parts enough to get up. We placed her in slings, and she made a good recovery.

DISLOCATION OF THE OS CALCIS.

BY G. AGERSBORG, D.V.S.

I had a singular case—if my diagnosis was correct—of dislocation of the os calcis in a two-year-old colt, produced by a kick of another horse. The bone on examination was found bent outwards and downwards at an angle of little more than 45° , followed in its course by the tendon of the perforatus muscle still adhering; there was very little swelling, but considerable tenderness; no crepitation was noticed, hence my opinion of simple dislocation, although difficult for me to understand how this can take place. The bone yielded on manipulation, and was restored without difficulty to its proper place and secured by means of a plaster Paris paste enclosed in a pasteboard form, left on for five weeks, when the colt was discharged, leaving no lameness. A small curb is all that is left to tell the tale.

POISONING IN A COW BY EUPHORBIA MARGINATA.

BY THE SAME.

A case of poisoning in the cow from eating the euphorbia marginata was observed. She presented the following symptoms: Temperature, 93° ; respiration, 18° ; pulse not perceptible; at each respiration an extremely deep and harsh moan, as if in the greatest misery; head stretched out on a parallel line with the neck; ears and horns very cold and slightly moist, coupled with anorexia; did not move nor could be made to move from her position, which was erect; eyes dull and half-closed; regurgitation suspended; frequent attempts to vomit, and a little froth at the mouth. She was treated with large doses of saline cathartics and copious drinks and emetics of a mucilaginous character. She gradually recovered in four days.

THE ARMY VETERINARY DEPARTMENT.

BY A. A. HOLCOMBE, D.V.S.

In no country in the world having any claim to consideration as a progressive power has veterinary science received so little attention as in the United States. The recognition accorded the veterinary profession by the Government has been more marked by its absence of appreciation of importance than for any other quality. Stress of circumstances in 1862 forced the Government to establish a Veterinary Department for the Army, and similar causes compelled some of the individual States, and the Agricultural Department in 1879, and more recently the Treasury Department, to seek escape from impending disaster to our large and rapidly-growing live stock trade, by recourse to the protective efforts of the veterinary surgeon's skill. Notwithstanding this recognition has always come with the poor grace of acts not voluntary, it is preferable to being entirely ignored, for it presents the opportunity of attracting public attention by rendering valuable public service.

But the fact cannot be disguised that the veterinary surgeon who attempts to serve his Government in an official capacity finds himself surrounded and hampered in his work by the most annoying circumstances: This is perhaps more true of the army veterinary surgeon than of one in the civil service, for the duties of the former consist of an unbroken routine, apt to become most demoralizing from the entire absence of any stimulus to do better.

That the practice of veterinary surgery is recognized as an important factor in maintaining the health and consequent efficiency of the public animals, is sufficiently demonstrated by the early establishment of the Army Veterinary Department; but that the Government appreciates fully what the duties of the veterinary surgeon should comprise, and recognizes the difference between the scientifically educated and the uneducated, is not so apparent.

Until 1879, the orders of the War Department made it possible for anybody to become a regimental veterinary surgeon, so it

is not at all surprising that the Veterinary Department, as then established, was most noted for its wonderful inefficiency and entire lack of knowledge of even the rudiments of veterinary science. But great as has been the improvement in some respects of this department, it is still of but little credit to itself, to the Government, or to the profession it cannot be said to represent; and it will remain in this condition until some radical changes are effected. If it is so great a desideratum that all appointees in future shall be graduates in veterinary surgery, as is required by the order of the War Department of March 27, 1879, how much more important would it seem that the ability of those appointed before this provision was adopted should be determined.

From a sentimental standpoint there may be objections to discharging from the civil service, on account of simple inefficiency, individuals appointed prior to 1879; but that such a procedure would prove of inestimable advantage to the Government, and that the animals in the public service are entitled to intelligent veterinary attendance, cannot be doubted. The service rendered to the Government by the Army Veterinary Department ought not to be less efficient than that performed by the Medical Department, for its importance, although differing somewhat in character, is not less great. Outside of the temporary service which each individual renders, it may be said that the Veterinary Department accomplishes nothing, for the monthly reports are unreliable and most imperfect; observations as to the effects of climate, altitude, labor, exposure, food, water, etc., are not considered of sufficient importance to demand attention, while no provision whatever is made for detecting the most flagrant violations of all the principles underlying the science of medicine and surgery. That such a department is not in good repute is not to be wondered at; but the fault and the remedy lie with the Government, for the department is precisely what the Government has made it, and it will never be better than the Government is willing to require.

Before this department can be made what it deserves to be, no doubt the Government will find it necessary to make the

veterinary surgeon's position endurable, as other countries have done; for it cannot be expected that any talent will seek a position to which there is attached no rank or social recognition, where promotion is impossible, and compensation for the service rendered most inadequate. When these inducements are offered by the Government, the materials out of which to construct a creditable veterinary department will present themselves. But when can such a change for the better be expected to take place? I fear not for some time to come, so the question now is, How can the present veterinary department be improved? I believe the following answer is a comprehensive one, and capable of immediate application: Congress provides for the employment of fourteen regimental veterinary surgeons, and *as many more by the Quartermaster's Department as may be necessary*. This last provision has not been taken advantage of, except in one instance, the employment of a veterinary surgeon by the Department of the Missouri. But the opportunity is here offered for the establishment of an effective veterinary department without the further intervention of Congress. There could be appointed for service in the Quartermaster's Department:

One chief veterinary surgeon, at a salary of \$2400 a year.

Seven department veterinary surgeons, at a salary of \$1800.

—— Post veterinary surgeons, at a salary of \$1500.

The first to be on duty at the Headquarters of the Army, to revise all requisitions for veterinary supplies, compile and prepare for publication all veterinary reports, and render such other service to the Government and public animals as may be determined necessary by the Quartermaster-General. The second class to do duty at the Headquarters of the Departments of Dakota, Platte, Missouri, Texas, Arizona, Pacific and Columbia. Duties to consist of revision of all department requisitions for veterinary supplies, revision of all inspection reports of animals condemned for sale or destruction, the inspection of all animals presented to the Government for purchase, supervision of the treatment of all outbreaks of disease, and such other service as may be required of a veterinary surgeon. The third class, to be appointed in such number as may be required, to perform the

duties devolving on a veterinary surgeon, at such posts as are without but in need of veterinary service.

But no veterinary surgeon should be appointed to the service until his qualifications have been determined by an examining board composed of at least one army veterinary surgeon, an army surgeon, and an officer of the Quartermaster's Department. A certain standard of proficiency should be required, as obtains in the Medical Department, and then a three months' probation under the chief veterinary surgeon before assignment to independent duty. This would not only determine the candidate's practical acquaintance with diseases, but introduce him to the other duties of his position.

Such an organization is not only possible, but demanded by the best interests of the service.

REPORTS OF CASES.

ENLARGEMENT OF THE SPLEEN.

BY R. HARRISON, D.V.S.

This subject was a gray gelding, sixteen years old and about fifteen hands high, used for a number of years in a hack. Had always worked well until the beginning of the present summer, when his appetite became capricious, until he could scarcely eat at all. Thinking a change would do him good, he was taken into the country, but could not be kept there, as he would invariably jump the fences and come home. He was kept for a time at the stable, doing but little work, until he became so feeble that he was sent to the scavenger's to be destroyed.

On making an incision along the median line, about two gallons of dark, serous fluid escaped, and a large black mass was noticed on the left side. This being unusual they sent for me, as I had asked them to let me know when they saw anything that was out of the common run.

The large black mass referred to was the spleen, enlarged to an enormous extent and weighing 56 pounds. Its length was 43 inches, breadth $20\frac{1}{2}$, circumference 9 feet and 2 inches, and 9

inches in its thickest part and 3 in its thinnest. On section the splenic tissue seemed everywhere destroyed, and in its place were melanotic deposits; its structure was firm, but at the same time readily cut.

The lungs were slate colored, and the heart, together with its large vessels, had melanoid infiltration. The stomach was very small, being pressed upon by the large spleen.

The coats of the large abdominal vessels showed deposits throughout. The liver, pancreas, kidneys, and mesenteric glands were involved and softened.

A peculiarity of this case was that the animal was reported blind for some time previous, and on post mortem examination small granular deposits were found over the choroid coat and over the place where the optic nerve enters the globe.

PIERCED EYE.

BY J. P. KLENCH, V.S.

A short time ago I happened to see in an old number of the New York *Spirit of the Times* of 1878 an item reading thus: "H. E, Mount Pleasant.—We are afraid that the membrane containing the vitreous humor, or corpus vitreum, has been burst, and the escape of the fluid causes the collapse of the tissue, which accounts for the injured organ becoming smaller than its fellow on the opposite side. This substance (the vitreous humor) is a transparent, gelatinous substance, which fills the back part of the eye, behind the crystalline lens, or probably the aqueous humor, which is a colorless fluid, situated in the anterior and posterior chambers of the eye, has been permitted to escape; *in either case a cure would be impossible.* We are almost satisfied either one or both of those fluids have escaped."

At the same time that this item came under my observation, I had under treatment a case exactly similar to the one above mentioned. It was that of a horse that got, as the proprietor termed it, a sore eye over night, he did not know how. On examination I found the eyelids firmly closed, the eyeball fallen in,

and the vitreous fluid falling down in a flow as thick as a lead pencil and filling entirely the opening made in the eye. The pupil was intact, semi-opaque, lifeless; the conjunctiva was sunk all around the pupil. The opening was of a triangular form, located a little above and behind the pupil, and leading into the posterior cavity of the eye. It was proven that the horse had been injured by a pitchfork the evening before, after dark.

This is the second case that I found in my practice where the eyeball was burst; with my first patient the treatment was very successful, and, as I was called very soon after this accident had happened, I felt confident of succeeding as well in this case. A wet cushion was applied over the eye; the horse was gently physicked, put at half diet and kept quiet in a dark place until the fourth day, when I called again to see him, and found that the eye had refilled and regained its former natural size. The wet cushion was continued for another week, and a collyrium composed of calomel, extract of belladonna, tincture of aloes and rose water was introduced twice a day in the eye with a feather. At the end of that time the eyesight was entirely restored. A clear cicatrix of a triangular shape, in white lines with a blueish shading around it, extended even to that portion of the conjunctiva which covers the pupil. The horse was sent to work and all treatment ceased.

Considering the excellent success I attained in these two cases, I think I have a right to disagree with the eminent veterinary editor of the *Spirit of the Times* when he declares such cases to be hopeless and always fatal. I firmly believe that whenever the eyeball is pierced in either the anterior or posterior cavity, and when the horse is given perfect rest and subjected to a proper treatment immediately, there is every prospect of a favorable issue, unless some important organ, like the retina and crystallized lens with its capsule, had been injured.

SALIVARY CALCULI.

BY THE SAME.

It is a very common occurrence to find salivary calculi in horses in the San Joaquin Valley. These concretions, varying in

size from that of an almond to that of an apricot, are all found on the left side, as far as my observation goes, which would seem to be due to the circumstance that the horses generally masticate their feed more on the left row of grinders than on the right one.

The centre of all these calculi appears to be either of wild oats or barley. The feed used around Stockton for horses is crushed barley and hay, which latter is either barley, summer-fallowed wheat or wild oats. This hay is generally full of grain. Now, it can be easily understood that during the act of mastication some hay is pressed between the grinders and the cheek, and thus a grain is likely to enter one of the numerous little glandular ducts lining the molar teeth, and there forming the nucleus of a salivary calculus.

Now, I wish to call the attention of my colleagues to the location of these concretions. My first impression on seeing them was that they were primitively formed in the Stenian duct; besides, I never heard or read of the possibility of calculi forming outside of the ducts of the parotid and maxillary glands, so I was in doubt for some time as to which those I saw really belonged to. But after close examination I came to the opinion that they were connected with the superior molar glands. They were all located one inch ahead of the Stenian duct, opposite the second superior molar tooth, easily movable in all directions between the buccal membrane and the alveolo-labial muscle, without causing any pain or disturbance except in some cases, where the concretion had such large dimensions as to push the membrane between the teeth during the act of mastication. Besides, I never did find any sign of inflammation of late or ancient date; nor have I learned through careful inquiries of such farmers as owned horses bearing a salivary calculus that there ever was any swelling noticed around the head, which convinced me that there never was any change in the size or appearance of the parotid gland or its duct. Another circumstance worthy of notice is that the wounds caused by the extraction of these calculi healed all up in a very short time without ending in a salivary fistula, which would be very often the case if they were found in the Stenian duct. My only purpose in publishing these remarks was to call the atten-

tion of the readers of the REVIEW to the possibility of salivary calculi forming in the molar glands.

Before closing I must add that this very manner of feeding grained hay causes a good many salivary fistulæ, which all cure in a short time by an injection of liquor de Villate.

SOCIETY MEETINGS.

The regular monthly meeting of the New York State Veterinary Society was held at the American Veterinary College, on October 10th, 1882.

In the absence of the President, the Secretary called the meeting to order, and the Vice President, Dr. Burden, was called to the chair. After the calling of the roll and the reading of the minutes of the previous meeting, the essayist, Dr. Coates, presented the following paper on "Septicæmia and Pyæmia."

Mr. President and Gentlemen :

According to the request of the President of the New York State Veterinary Society, to write an essay on some topic which will be of interest to the profession, and at the same time to excite a discussion among the members of this Society, I have chosen a subject from which I hope to hear the different views and opinions of the gentlemen here assembled freely expressed, as it is a matter which requires attention not only on account of its pathology, but the manner and mode of its production. Some diseases are interesting on account of their frequency, others because of their rarity, while pyæmia and septicæmia are on account of the diversity of opinion as to their pathology, etiology and symptomatology, and I have written as concisely as possible the most prominent features of these diseases. Pyæmia is a specific infectious disease, acting the same way every time—a morbid condition of the blood, which is produced by a miasm generated in decomposing pus, giving rise to recurrent chills, fevers and sweats, and characterized after death by metastatic abscesses; while septicæmia is a morbid condition of the blood dependent

upon absorption of decomposing animal matter by the lymphatics, when placed in actual contact with a living membrane arising from the absorption of septic matter, from gangrene, gangrenous wounds, lungs, pleura, &c., also the result of contaminated drinking water, (animalcules), water containing putrid or septic matter from dead animals, &c. Pyæmia arises from the poison developed from putrifying pus, either inside or outside of the body, as phlebitis, suppurative phlebitis, from atmospheric influences producing changes in the blood, and from thrombus and emboli. The blood, as a result of the miasmatic infection, exhibits a tendency to coagulate spontaneously in the veins, and especially where the current of blood is slowed, as in the capillary vessels. The blood coagulates spontaneously in the veins, and decomposes rapidly after being drawn from the body. In various organs in the body there will be infractions, which result in abscesses due to the presence of the poison; the mucous membranes of the body will be found thickened, clot in the heart with fibrous strings interlacing the chordæ tendinæ. In septicæmia the blood loses its power of coagulation, becomes darker in color, and serum of a dark yellow color; spleen enlarges and softens; congestion of mucous membrane of intestines, with catarrh of the digestive tract; molecular degeneration of the heart, which weakens it; congestion and œdema of the lungs, due to the failure of the heart power; congestion and œdema of the liver; spleen and mucous membranes softened. In septicæmia the septic matter is absorbed by the lymphatics, in pyæmia by the veins, and takes place in the following manner: as, for example, a wound of the foot setting up an inflammation of the veins, a thrombus is formed, which breaks up, and carried through the veins into the heart, the embolus passes from the heart through the arterial circulation of the lungs till it stops in a branch too small for its passage. Now congestion of the capillaries takes place, due to the collateral circulation, then œdema and inflammation, which take on a suppurative process due to the character of the poison; the same take place in other organs, and these infractions may again break down, and carried through the circulation to other parts of the body, form other abscesses.

Symptoms of septicæmia are according to the amount of poison absorbed. In the severe type there is a chill and sudden fever, with rapid rise of temperature, which is 102° F., or may go as high as 105 or 106° F. There is only one chill, or it may be a slight rigor, with rise of temperature. In the first forty-eight hours they become restless, pulse weak and from fifty to eighty, or even higher; respiration increased; diarrhœa in some cases, and offensive; then pass into a comatose condition and die. Skin is generally dry, but may have profuse perspiration and bad smell from animal. Generally die in seventy-two hours, but if live a week or ten days are likely to recover, and perfectly. In pyæmia, the symptoms are usually well marked; at first there is a rise of temperature 104 or 105° F., then a chill which lasts some time but may take place at the time of the rise of the temperature, or a short time after, then perspires freely, after which time the temperature lowers a little, or in some cases it may have a marked rise. They now become restless and exhausted, then the symptoms abate and recur again with chill and sweat more profusely; pulse is rapid, weak and compressible; before each chill the animal is restless, after the sweat the patient becomes more composed. As the inflections occur in the different organs, will have symptoms belonging to these organs affected as local manifestations of the disease. Pyæmia differs from septicæmia by the recurrence of the chills and sweating and a peculiar yellowishness of the conjunctivæ, and sometimes of the other visible mucous membranes.

The only question of importance that arose during the ensuing discussion, was whether or not a septic disease has an incubative stage. There was considerable diversity of opinion on this point, some of the members asserting that there can be no incubative stage to a septic disease, as the disease begins its development immediately and presents symptoms immediately, while others held that the poison could lie latent for a variable period and no constitutional symptoms would be manifested, and considered this the incubative stage.

A vote of thanks was unanimously extended to the essayist for his paper.

Dr. Crane was appointed as essayist for the next meeting, which will be held at the American Veterinary College, on Tuesday evening, November 14th. The Society then adjourned.

CORRESPONDENCE.

A GOOD SUGGESTION FOR A GOOD PURPOSE.

MALONE, N. Y.

Mr. Editor :

IN AMERICAN VETERINARY REVIEW, Vol. VI, No. 4, page 183, is a correspondence from E. Mink, of Rochester, N. Y., on the regulation of practice of veterinary medicine and surgery in this State. I hope the United States Veterinary Medical Association will instruct all its members present to do all in their power to have a bill passed. E. Mink has reference to have it passed the next term of the Legislature. I am not a graduate of any medical school, but have been practicing veterinary medicine for fifteen years, and should the bill become a law, I willingly will give up the practice if I cannot pass the examination required.

I think this is the most important item to be looked to, and each member should do his utmost with any members of our legislative body in a fair and honorable way. Our member of Assembly from Franklin county I have seen, and he will do all in his power to pass some reasonable bill to protect the veterinary practice in this State.

Yours, etc.,

G. H. KIDNEY, V. S.

REVIEW.

BOVINE MEDICINE AND SURGERY.

Every practitioner and student of veterinary medicine will receive with pleasure the notice of the publication of Prof. J. W. Hill's work on "Bovine Medicine and Surgery," which Mr. Jenkins, of New York, offers to-day to his patrons—a work which

has been looked for for a long time, and one which will be read with pleasure by all interested.

Any veterinarian who will engage in the difficult task of enriching English veterinary literature will deserve credit for his endeavors, especially in our days, when so few writers are to be found, and Prof. Hill will allow us to express to him our sincere compliments for his new work. Handsomely printed, illustrated by 153 wood-cuts and 19 colored plates, "Bovine Medicine and Surgery" forms a large octavo volume of over 650 pages, the contents being divided into twenty-six chapters. The first ten chapters are essentially devoted to internal pathology of respiratory, circulatory, digestive, urinary and genital apparatus. They are followed by seven chapters upon the anatomy and physiology of the generative organs of the cow, parturition, diseases of foetus, monstrosities, diseases of the young animal, and those connected with parturition. The nervous system and the various senses occupy the four chapters following. Internal parasites and blood diseases are then described. The balance of the work contains a chapter upon surgery, another upon poisons and their antidotes; the last treats of diseased meat and milk.

As a whole, "Bovine Medicine and Surgery" will prove to every reader a good work, and one which every one will have in his library; and though the author remarks in the preface his object has not been to make every man his own doctor, there is no doubt that many non-professionals will do more than diagnose diseases by a careful perusal of the book. We regret that Prof. Hill has not been more generous in giving the public some of the new theories and facts, which are to-day pretty well admitted by veterinarians, upon two important diseases of cattle, viz.: anthrax and phthisis pulmonalis. It is true that the readers of English veterinary journals may have, through them, learned of the discoveries of Pasteur, Toussaint, Koch and others; still, we believe in a work like this, notice of those discoveries would not have been out of place. It is a vacuum in this excellent work which we are sorry to notice.

The work is well written, enlarged in many instances with unnecessary descriptions, though in others perhaps a little too

concise. Still, we feel well satisfied that it will prove a good acquisition to veterinary literature, and that dedicated as it is to our esteemed friend, George Fleming, it will meet with the good success it deserves.

NEWS AND SUNDRIES.

HARVARD VETERINARY DEPARTMENT.—Students in veterinary medicine at Harvard College will be received on and after September 26th.

STRANGE DISEASE.—A disease, said to be a combination of black measles and scarlet fever, is raging at Sitka, Alaska. What next?

WHITE DEER.—A deer, milk-white in color, was received from Maine recently by one of the dealers in Quincy Market, Boston. It is said to be the first albino of that species of animal ever received there.

CATTLE QUARANTINE.—The Cattle Quarantine Commissioners find a difficulty in securing proper ground for their stations at the principle ports. They have written to the trunk lines of railroad asking their suggestion as to sites.—*American Cultivator*.

AID TO SCIENTIFIC RESEARCH.—M. Pasteur has received for prosecuting his scientific researches in regard to the contagious diseases of animals grants of money amounting altogether to \$30,000.—*American Farmer*.

LARGE COLT.—Col. Holloway has a two-year-old Clydesdale stallion, Baily Williams, weighing, in only moderate flesh, over 1,800 lbs. He is by the great Druid, and out of a Prince of Wales mare. He promises to rival his renowned sire in size. Druid's weight was about 2,500 lbs.—*National Live Stock Journal*.

HYDROPHOBIA AND DOG-MUZZLES.—In Bordeaux, between 1876-78, when dogs were muzzled, there were 5 mad dogs which bit 52 other dogs, one cat, and one man. Between 1871-81,

when muzzles were removed, there were 32 dogs which bit 209 animals and four persons. The value of muzzling the dogs is clearly shown.—*Medical Record*.

SWINE PLAGUE.—The swine disease, which has carried away many animals in the neighborhood of Reading, Pa., has caused great alarm. All the remedies applied have failed to affect a cure so far, and no doubt the best mode and cheapest remedy with the animals attacked is to kill them at once and bury them deeply out of sight to prevent contagion.—*American Cultivator*.

AID TO AGRICULTURE.—Little Belgium pays \$22,000 for the advancement of agriculture; the objects are: For indemnity for diseased animals (killed by order of the Government), veterinary service and aid to widows and orphans of former veterinary physicians, improvements of races of domestic animals, agricultural exhibitions and other encouragements, agricultural, horticultural and veterinary schools.—*Farmer's Review*.

HORSES FOR FOOD.—During the last six months 3,085 horses have been used for food in Berlin. The warm sausages sold in the streets at night are mostly of equine origin. When a prominent restaurant keeper failed some years ago the most conspicuous among his creditors was a horse-butcher, which throws a side light on the "roast beef" that used to be served up to his guests. The poor are the chief buyers, but there are not a few gourmands who look upon horse flesh as a delicacy.—*American Cultivator*.

THE PASTEUR PROCESS SUCCESSFUL IN WARM CLIMATES.—The Pasteur process of vaccinating sheep as preventive against *charbon*, after proving a success in the North of France, has turned out the same in the warm South. The point on which attention is now fixed is, for how long—6, 12, or 36 months—does the efficacy of the pock endure? Time, of course, will settle the point. Native Barbary sheep are proverbially known to resist charbon, but when crossed in France, that immunity disappears.—*Farmer's Review*.

LIVE STOCK ESTIMATES.—The United States has 38,000,000 cattle, India 30,000,000, and Russia 29,000,000. Of horses,

Russia 20,000,000; the United States 10,500,000, and Austria 3,500,000. Australia possesses 80,000,000 sheep, the Argentine Republic 68,000,000, and Russia 63,000,000. The United States comes fourth in the list here with 36,000,000, but then she leads the world on swine, having 48,000,000. It is not generally known that the goat is an important live stock integer in some countries. India is credited with 20,000,000, Africa with 15,000,000, and Mexico with 6,000,000. Thus the United States stands first in the list of nations on the two most important articles of flesh food, cattle and hogs, second in horses and fourth in sheep. The next decade will probably find us first also in horses, and, perhaps, third in the number of sheep.

SLAUGHTER-HOUSE EXAMINATIONS.—The importance of facts to be obtained by a careful and systematic examination of animals slaughtered for food has hardly been recognized in this country. Reports of such examinations made in other countries have frequently been found to contain most valuable information. In particular, the city of Augsburg may be instanced. For some years the investigations of Inspector Adam have been widely quoted by Fleming and others. Recently the *Journal of Comparative Medicine* gives some important data obtained from the same source. Among 66,731 animals brought to market in the year 1881, there were 12,269 cattle, of which 246, or 2.01 per cent., were found tuberculous. This ratio is much smaller than is generally supposed to exist among American cattle. But further, the amount of tuberculosis varied greatly, and in most cases was not extensive enough to injure seriously the quality of the meat. In fact, only eighteen animals out of the two hundred and forty-six were condemned as unfit for food. The tubercles were confined to the lung in 142 cases, to the pleura in 37 cases, to the lungs and pleura in 68 cases. In 59 cases there were also tubercles in the liver.

Thus the important fact is brought out that in no cases were tubercles found in parts of the body (except the liver) used as food.

Further facts bearing upon the infectiousness of the milk of tuberculous cows are given. Among 24,901 calves killed, when

under the age of four weeks, no tubercles were found. Now, about five hundred of these must have been sucking the milk of tuberculous mothers, yet with apparently no injurious effect. And furthermore, the age of the tuberculous cattle was, with the exception of twenty-three, over three years. The conclusion is, that cattle, at least, are not infected in the ordinary sense with tuberculosis by feeding upon the milk from diseased mothers.—*Medical Record*.

EXCHANGES, ETC., RECEIVED.

FOREIGN.—*Revue für Thierheilkunde und Thierzucht*, Veterinary Journal, Veterinarian, Clinica Veterinaria, Review d'Hygiene, Archives Veterinaires, Recueil de Medecine Veterinaire, Journal de Zoötechnie, Gazette Medicale, Annales de Belgique.

HOME.—Turf, Field and Farm, Rural New Yorker, Ohio Farmer, Practical Farmer, Farmers' Review, American Agriculturist, American Cultivator, Breeders' Gazette, National Live Stock Journal, New York Weekly Times, Country Gentlemen, Medical and Surgical Reporter, Medical Record, City and Country, Iowa Farmer.

JOURNALS.—New England Homestead, Home Farm, Farm Journal, Western Medical Reporter, Boston Daily Advertiser, Spirit of the Turf, American Field.

BOOKS.—Animal Plagues, second part.

COMMUNICATIONS.—R. Harrison, A. A. Holcombe, J. P. Klench, H. T. Foote.

AMERICAN VETERINARY REVIEW,

DECEMBER, 1882.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

BY A. ZUNDEL.

(Continued from page 328.)

LAMINITIS.

III. *Pathological Anatomy.* At the initial period of laminitis, when there is only simple congestion of the keratogenous apparatus, and especially of the podophyllous tissue, the sub-horny tissues are in a condition of sanguineous derangement, characterized by objective signs. When the hoof covering them during life is removed, they are found of a dark red color, in a kind of erythema. When pressed between the fingers, their thickness is noted to be increased, and they are found to be gorged with blood, an incision made through them allowing the escape of a large quantity of that fluid.

If the laminitis exists for several days, the podophyllous tissue is found to be infiltrated with plastic exudations, and if there has been hemorrhage or apoplexy, blood is found between both the sensitive and insensitive laminæ. In other cases there is pus, and in case of gangrene, the tissues are found of a livid color.

The alterations are still more serious in cases of chronic founder. When a foot, foundered for some time, is divided by the saw in its antero-posterior axis by a section of all the parts,

the thing first noticed is a change in the connection of the os pedis with the wall. These changes, however, exist principally at the toe, and extend as far as the half of the quarters, on a level with the lateral cartilages of the foot, while further backwards they are not to be observed. On the side some laminae are always found in their normal condition, as can be seen by a section of the foot made transversely. Generally, a yellowish substance, of horny appearance, but softer, fills up the space situated between the walls and the keratogenous structure. This is the product of the exudation of the inflamed podophyllous laminae, mixed with the horny substance which they secrete normally. These laminae are themselves hypertrophied, being sometimes one and two centimeters in length and exceeding by four or five times their normal size. The keraphyllous laminae are also hypertrophied, a condition which is evidently due, as respects the podophyllous tissue, to the increase of vital activity, resulting from the inflammatory condition of the tissue and to the infiltration by fibroplastic exudation, resulting from the inflammation. As to the keraphyllous laminae, they repeat on the internal face of the wall, in an inverse manner, the disposition of the secreting laminae of the hoof between which they are formed and lodged. These, however, as they increase in extent, unite at their base in the whole of that portion which does not cooperate to their union with the podophyllous bands, and then forms a compact mass uniting most frequently with the internal face of the wall. Sometimes this mass of yellowish hoof occupies the whole space between the os pedis and the wall, but in some cases it adheres only to the wall, when it forms around the keratogenous tissue, a new wall, also provided with keraphyllous laminae, and there is formed between it and the normal wall that porous, brittle mass, without homogeneity, which fills up the space, which constitutes the seedy toe. The mass thrown between the wall and the os pedis presses upon it; the anterior face of the bone assumes a vertical direction, and the os pedis presses towards the solar arch on its anterior border at a point situated posterior to that where, in normal feet, this border rests. Notwithstanding its resisting power, the wall gives to the effort of the mass interposed in front, the

form of the foot changes, and then results the change to the oval in the contour of the foot. Under the influence of the displacement of the phalanx, not only the flattening and afterwards the convexity of the sole and even its perforation results, but the plantar cushion is itself pressed down and crushed between the bone and the frog, which is then generally atrophied. A hoof of new formation is often developed between the sole and the inferior face of the phalanx, in order to prevent it from necessarily sinking. This increases the pressure upon the bone and contributes to its atrophy and sometimes to its complete disintegration.

But, between the surface of the coronary band and the origin of the hoof, whose formation is anterior to the laminitis, there may also be a new layer of hoof, more resisting than that which occupies the space between the wall and the podophyllous tissue, which is no more hoof mixed with the fibrinous exudation, but a pseudo-hoof secreted by the coronary band. The fibres of this hoof, however, instead of being rectilinear and growing down in the direction of the old wall, with the fibres of which they are continuous, are, on the contrary, sinuous and nodulated, and disposed to take a somewhat horizontal direction. There is often, besides the old wall, a deep horny tumor, a keraphyllocele which grows inside, attempts to replace the soft horn secreted by the podophyllous tissue, and adds to the pressure of the os pedis, by forming a new wedge, more solid and resisting, which produces a displacement of the phalanx, whose anterior face then often becomes more than vertical. This horny secretion from the coronary band is made evident by a section of a foundered foot, when the cutigeral cavity will be found much enlarged. Guyon, jr., Hertwig, and Gourdon remark that the displacement of the os pedis is counterbalanced by the more rapid development of the heels and the projection of the foot forward; and that thus the phalanx does not support the weight of the body except by its inferior border only, but preserving, nevertheless, its primitive position. It is especially observed that when the foot is completely deformed, the projection of the wall does not prevent the os pedis from remaining in its normal position.

The growth of hoof from the podophyllous tissue and the

coronary band is not easily stopped. The horny masses which are formed continue to increase, and even soon end in uniting. There then remains a thick mass of deformed shape, four or five times thicker than the normal wall, but where the keraphyllous leaves are still noticed, corresponding to the podophyllous laminae, largely developed, and above all, running deeply into the wall of the hoof. The space between the wall and the anterior face of the os pedis is filled with pus besides the secreted hoof; the seedy toe, if it existed, disappears. Though the hoof becomes thus much more voluminous than before, the deep parts are not any more in their normal condition, but are lodged in a smaller and smaller space, and are thus in such a state of compression that they become atrophied. The bone is altered in its texture, as well as in its form, and becomes denser and more brittle. One might suppose that as the disease progresses, the os pedis would become pressed backwards more and more towards the sole, in consequence of its giving way under the pressure. This, however, is not so. As the old normal walls disappear, the new horn yields to the pressure from forward, the heels rise, the os pedis resumes its horizontal direction, and the danger of hernia of the bone diminishes, and a hypersecretion of the hoof is even noticed towards the point where the hernia would have taken place, in the middle of the pumiced sole.

We have, so far, supposed that chronic laminitis is always manifested by the presence, between the internal face of the wall and the podophyllous surface, of a mass of abnormal hoof. But there are cases, after hemorrhage, and especially after serous exudation, where, instead of it, a cavity is found—a seedy toe. There is also an entire separation between the os pedis and the wall. But the horny production, that of the podophyllous tissue especially, is not sufficient in amount to fill up the whole space, there being hoof only upon the podophyllous tissue. There is then a sound wall formed, separated from the old one by a vacuum, which is often filled by a dry mass derived from the blood and serosity, mixed with the horny cells. But more frequently the separation is limited to the height of the podophyllous tissue, and the wall yet remains adherent to the coronary

band, by its cutigeral cavity. The band then continues to produce the external wall of the hoof, while the podophyllous produces the abnormal wall, and the seedy toe remains between the two walls.

There are cases where the separation, produced by the congestion of laminitis, takes place to such an extent, in circumference or in height, that the hoof loses all its adhesion, except towards the heels; and then one may see the curious fact of the new generation of an entire new nail within the old one, the former being, so to speak, sequestered in the latter.

IV.—*Differential diagnosis.*—It is possible that, notwithstanding its distinctly characterized physiognomy, laminitis, of the hind feet especially, may be mistaken for a disease of the spinal region. Often, when the founder is light, the hinder parts wag, as in sprains of the loins, but the resting of the feet on the heels, their heat and their sensibility, will soon point out the distinction. In more severe cases, the hinder founder may simulate paralysis, especially if the animals cannot or will not raise themselves. Here, the history of the case is very useful, and the explorations of the feet will assist in making the diagnosis. We have seen cases of laminitis behind, where the raising of the foot has been such that it might be taken for springhalt, or even for locomotor ataxy. It may be also taken for tetanus when in mild form, or yet incompletely characterized.

V. *Prognosis.*—Laminitis is so much more alarming and rebellious as to treatment, as it is more extensive, more serious, and of longer existence. The most serious cases are those which are due to a constitutional predisposition, and those which follow a general alteration, or are complicated with other diseases.

Chronic laminitis is especially serious from the production without separation, and in an excessive measure, of the horny substance. Seedy toe is then less serious, and that which does not extend to the coronary band is sometimes curable by the gradual growth of the hoof; the tumor of the os pedis is the most rebellious to treatment. The destruction of patients is often necessary, from their inability to walk or to do any work, and that notwithstanding all treatment they are entirely useless.

(*To be continued.*)

AN INQUIRY

INTO THE ETIOLOGY AND PATHOLOGY OF THE VENEREAL DISEASES OF MAN AND OF THE LOWER ANIMALS.

BY CHARLES F. RING, M.D.

(Continued from page 335.)

Let us now examine for a moment into some of the experiments made in this new disease, for after all experiment—properly conducted—is the touchstone of fact.

Fleming writes: "The disease (*lues venereal equinis*) is produced only by actual contact of the diseased with the healthy. Inoculation is rarely successful in producing it; Lafosse and many other experimenters have not been able to transmit by puncture, nor yet by rubbing the mucons of the generative organs of an infected into those of a healthy animal; though Hertwig has succeeded once in doing so. Perhaps if the attempts were made at the period of *œstrum* they would be more successful." (*Ibid*, Vol. 2, p. 330.)

This admission and the results are highly significant, for it will be seen that the opposers of the theory of the transmission of syphilis to solipeds are caught in their own argument, viz.: that *while neither the new disease nor syphilis can be communicated by puncture or inoculation*, yet upon resorting to another method the former disease has been transmitted. This would seem clearly to prove that syphilis also could be communicated in the same manner, and more particularly at the time most favorable.

In recapitulating our views again from the foregoing we feel justified in arriving at the following conclusions:

I. That the local diseases of the sexual organs of solipeds, unlike those of the human species, have ever been considered separated from the constitutional disease, and in this respect much could have been learned from veterinary authors.

II. That there are now no longer any good grounds for justifying a belief in the oneness of the venereal contagia.

III. That the plague out of which ultimated the syphilitic

diseases was not in its inception of a venereal nature, but only became so after a long time, and in the manner described.

IV. That *lues venerea equinis* is a comparatively recent disease, as is likewise human syphilis (which antedates it) and between which there seems to be the most intimate relationship.

V. That theoretically, at least, the etiology of human and equine venereal diseases has been successfully accounted for.

VI. That the argument against the theory of the transmission of syphilis to the lower animals is most inconclusive and weak.

VII. That the existence of a veritable syphilitic disease of the horse is now no longer open to dispute.

VIII. That syphilis is a glanders modified by various circumstances that could not obtain in the horse, and the new venereal disease of solipeds is a syphilis which often becomes glanders for obvious reasons.

IX. That gonorrhœa and its ally chancroid, being local diseases capable of originating *de novo* without the intervention of syphilitic virus, will ever be present in one form or another in a greater or lesser degree as a disease of the human race.

X. That the syphilitic virus, coming originally from a source foreign to the sexual act, and incapable of spontaneous development in a man, will, unless renewed again from a glanderous origin, gradually grow milder and ultimately become extinct.

The nature of the experiments to be performed to ascertain the soundness of our views must be obvious. If an animal or a human being suffering from either syphilis or glanders be inoculated with the analogous poison, preferably the syphilitic—because it is the milder—and it fails to develop as a *chancre*, after repeated trials conducted by those competent to judge, we may infer that the two diseases are identical, and cannot be inoculated the one into the other.

In bringing our subject to a close, we feel that we have offered no innovation. We accept fully the modern pathology of syphilis, and have taken only a step in advance of the present. Should our effort be deemed worthy of consideration from those who are laborers in this field of study, may our conclusions be

tested after the manner that to them shall seem best suited to confirm or disprove. If this be done, we incline strongly to the belief, that what we have here offered as hypothesis, the future will acknowledge as fact.

THE OPERATION FOR SCROTAL HERNIA OF THE PIG.

BY T. B. ROGERS, D.V.S.

Practicing in the country, I am often called on to castrate ruptured pigs, and as the method I follow is uniformly successful, perhaps a detail of the operation may be of service to some young practitioners. The common procedure is to open the vaginal sac, remove the testicle, return the intestines and stitch up the wound. The mortality following this rude operation is necessarily heavy, and qualified practitioners will, of course, castrate by the covered operation. It is to some details of this operation that I would call the attention of the profession. To secure a large pig for operation, he should be lashed to a stout plank and the plank slanted up against a wall. Smaller pigs are held head downward by an assistant. Whatever method of securing quiet is followed, the pig should be so secured that he struggles but little. The pig secured, the operator attempts the reduction of the hernia. In small pigs this can usually be done; but in many cases, in large animals, it is a matter of difficulty. If it is reduced, an assistant keeps it back by pressure of the fingers of one hand while the operator cuts through the scrotal skin *as high up towards the tail as is practicable*, leaving the fascia between the tunica vaginalis and skin untouched, to be afterwards divided by a few horizontal touches of the knife. The diverticulum of peritoneum is now exposed, and a little pressure causes the testicle and its envelope to pass out. The operator will now with his thumb nail separate the testicle and tunic from the covering fascia, the other hand drawing the stone upward, and having satisfied himself that there is no intestine accompanying the cord, a needle loaded with double silk is passed through the cord, which is tied in two portions. One of the ligatures, after securing its half of the cord,

is passed round the whole of the cord and the cords (all of them) cut off short. The cord is now cut off as close as possible to the ligature, and the outer wound closed by interrupted suture, leaving but little room for drainage.

I have never lost a pig castrated by this method. The cord is tied in two portions to prevent slipping off the ligature before the peritoneal surfaces are agglutinated, this accident being liable to occur unless a long stump is left. From the closure of the outside wound a considerable amount of exudation (ending in formation of connective tissue) occurs, and this is an admirable preventive of further descent of the hernial sac. An abscess occasionally forms, but I leave it to take care of itself. In large pigs, where the hernia cannot be reduced, the operation is the same. The extra care must be taken to avoid including any intestine in the sutures, and I find that large hernias are gradually reduced by nature after removal of the testicle (in these cases there is not only a very large inguinal ring, but rupture of the abdominal coverings, extending in some cases almost to the umbilicus). What becomes of the ligatures? From the experiments of Spiegelberg and Waldeyer, it would seem that in many cases, after cutting through the outer surface of the pedicle, they are at once encapsulated by approximation of the cut edges, and thus cease to cause irritation. This must often be the case in this operation, as there is frequently no apparent irritation, the wound in the scrotum healing quickly and permanently. The only portion of ligature in the peritoneal cavity is a small part of the silk tying the cord in segments, and here nature protects herself by a folding of peritoneum upon it, so that in twenty-four hours the peritoneal cavity is intact; the ligatures outside the peritoneum. A useful practical lesson may be learned from the method in which the peritoneum, so to speak, protects itself, *i.e.*, that in spaying or rumenotomy care should be taken to include the peritoneum in the stitches.

STRANGULATED INGUINAL HERNIA.

BY J. C. MEYER, JR., M.D., V.S.

The October number of the REVIEW contains the report of a case of strangulated hernia, by C. H. Peabody, D.V.S., which arouses my interest in this direction particularly, on the ground of having had a recent case of the same disorder to come under my observation, a description of which I will now communicate in order to urge the necessity of timely surgical interference to rescue the usually valuable property (stallions) that chiefly become the victims of this horrible accident.

September 30th.1882, at 3 P. M., I was summoned to visit a valuable stallion at Erlangen, Ky., that had been driven on the preceding evening from Covington, Ky., a distance of nine miles, for the purpose of preparing him for fairs. He arrived at the designated place at 7 P. M., when he exhibited abdominal pains for the first time in his life, having attained the age of six years. The trainer administered what he considered appropriate in the treatment of a case of colic during the night and until noon of the next day, when he recognized his failure to manage the case.

After preparing myself with instruments, etc., I reached the patient at 5 P. M., when I found him standing in a box stall, his head elevated, with an anxious expression, his body covered with cold perspiration and trembling. He was moving forward and backward in a staggering manner. Eructations of gases and food from the stomach were observed. His pulse numbered 110 per minute and faint, his respiration rapid, and temperature 103. I had his left hind limb abducted, so as to allow an easy manipulation of his scrotum. The scrotum was shriveled up, covered with a cold, clammy sweat. His left spermatic cord was of a natural size; the right, on the contrary, was enlarged, firm and painful on pressure. This furnished suspicious evidence of strangulated hernia. I then made a rectal examination and found the pelvis well filled with distended small intestines, one portion of which extending into the inguinal canal and being firmly held there. Owing to the distended condition of the bowels, it was impossible to handle them with a view of extricating the constricted portion, so I procured a short aspirator

needle and (per rectum) punctured the distended bowels, giving rise to the escape of gases and bloody serum, thereby diminishing the volume of the intestines to a considerable degree. The discharge of bloody serum through the tube indicated a far advanced gangrenous state of the bowels, and I then practiced taxis with the left, and with the right hand endeavored to extract the pinched knuckle of intestine, but to no purpose. The animal apparently approaching death rapidly, I desisted from any further attempts to reduce the hernia and made a fatal prognosis.

Death ensued about fifteen minutes later in my presence. I immediately made an autopsy, which verified my diagnosis. Opening the left testicular coverings, a flow of serum followed of a reddish color but containing no intestines. Exposing the right testicle also caused a discharge of bloody serum. Enlarging my incision upward toward the inguinal canal, I discovered a coil of intestine about four inches long protruding from the abdomen. This portion of intestinal tube was of a mahogany color, greatly congested and thickened, but nowhere was it found to be in a sphacelated condition. The line of constriction was sharply defined. Small intestines contained a large quantity of bloody serum throughout their whole extent.

There is of course nothing of any interest in the occurrence of strangulated hernia, but there is in the operation for its relief, which I, to my regret, have not as yet had an opportunity to perform.

The greatest importance is attached in diagnosing the case before the strangulation has caused irreparable damage; that is, the impairment of the vitality of the protruded bowel that it could not recover itself. It is my belief that in the vast majority of cases, if seen immediately after the occurrence of strangulation, reduction can be effected by manipulation without much trouble, but as time elapses it becomes more and more difficult of accomplishment, simply because the parts are becoming more engorged every moment. If failure attends this method after reasonable trials, herniotomy ought to be resorted to at once. I am thoroughly satisfied that long-continued and violent attempts to effect reduction by manipulation often destroys the only chance remaining, and to wait for a spontaneous reduction is haz-

ardous in the extreme. As stated above, I never performed herniotomy for the relief of strangulated inguinal hernia, but have had three cases where this procedure might have been brought into requisition if the cases had not been too far advanced to accomplish any good by the operation. My post mortem observations have taught me to make the incision along the anterior border of the spermatic cord coverings without exposing the testicle. By so doing the ring is more easily reached; moreover, in my opinion, it guards against the possible prolapsing of a great mass of intestines during struggling after the ring is enlarged. To obviate struggling to a great extent, which is very essential, a round dose of chloral hydrate ($\frac{3}{4}$ iss), as advocated by Dr. Corlies, for operations in general, is of valuable service. Even the administration of chloroform or ether may be judicious, but horses struggle almost as much during the inhalation of these agents as they do while undergoing the operation without them. However, I do not want to disparage the usefulness of these anæsthetics. Of course the manner of the operation for the relief of strangulated inguinal hernia is understood by all regular practitioners, and without having any new suggestions to make, I deem it unnecessary to describe it. A few words in connection with securing such patients. From my experience in operating upon cryptorchids, I will state that by drawing the upper hind leg forward and securing it to the neck, an extra hobble being placed above the hock joint of the same limb, with a long rope attached to it, which is thrown over a joist or limb of a tree, as the case may be, and drawn tight, in addition to the propping up of the horse on the other side with bags of hay, is a convenient method for the operator to employ in performing herniotomy.

PHYSOSTIGMINUM,

AN EXCELLENT REMEDY IN COLIC, OVERFEEDING AND DYSPEPSIA.

BY R. S. HUIDEKOPER, M.D., V.S.

Professor W. Dieckerhoff, of the Royal Veterinary School at Berlin, publishes in the September number of the *Wochenschrift für Thierheilkunde und Viehzucht* the results of his discovery of

a most valuable remedy for employment in veterinary practice.

The following is a brief resumé :

Physostigminum (Eserin) is derived from the calabar bean.

Physostigminum has a special action on the intestinal muscles, and exerts, in a prompt manner, a lasting excitation of them.

Basing his idea upon this physiological action, Professor Dieckerhoff resolved to make experiments with the alkaloid in cases of overfeeding and in acute and chronic dyspepsia (gastro-sis) of horses.

He found no difference in the action of the sulphuric and the salicylic salts.

He employs the crystallized *physostigminum sulfuricum*.

This dissolves readily in cold water, forming a bright yellow, clear fluid.

The solution employed subcutaneously excites no inflammatory action.

The instillation of an aqueous solution (0.01—10.00 grm.) in the eyes of horses, produces in an hour contraction of the pupil, which disappears in twenty-four hours.

No contraction of the pupil was observed in the experiments by *subcutaneous* and *intravenous* injection ; on the contrary, after large doses, always transitory dilatation.

By intravenous injection the action of the remedy is much more speedy and more powerful than by subcutaneous injection.

For the intravenous injection, the vein is distended by being compressed, and a moderate sized hypodermic needle inserted with the point up.

The escape of blood shows that the needle is properly applied.

The small puncture closes itself.

It is best to use a syringe of size sufficient to allow the entire quantity to be injected at once.

After a full dose of *physostigminum sulfuricum* is injected into the circulation, only two or three minutes pass before its action begins.

The following symptoms are presented :

Restlessness, muscular twitchings, especially of the shoulders and croup ; more marked contractions of the extensors of the hind legs ; unsteadiness of the body ; light colic ; sweating ; fre-

quent and difficult respiration; at times marked dyspnœa, sometimes gaping; salivation and continued licking with the tongue; in some cases an inconsiderable elevation of temperature; increase of *peristalsis* during one to two hours; lively intestinal murmurs, audible at several paces; copious voiding of intestinal gases and excrement; the excrement changes later to a pap-like and often to a fluid consistency.

The introduction of greater (toxic) doses into the circulation, induces tetanic contractions of the extensors of the hind legs, tetanic contraction of the intestinal muscles, groaning from the pain, great debility and transitory relaxation of the sphincter ani.

When a full dose of the remedy is applied *subcutaneously*, the first symptoms are observed in twenty to forty minutes.

Slight trembling of the skin at the point of injection, and later over the whole body; repeated gaping, active peristalsis, repeated voiding of gas and excrement, which continues for about three hours; increased salivation and continuous licking.

Frequency of respiration and dyspnœa, as well as elevation of temperature, generally lacking after the *subcutaneous* injection, or are but trifling.

In many horses, small doses injected subcutaneously have no perceptible effect; in others, peristalsis becomes more active in about an hour, and in two to three hours the horse voids a large mass of excrement.

The action of physostigminum extends over the whole intestinal tract.

As the remedy in suitable doses has no excessive action, it is especially fitted for the treatment of grave stomach and intestinal disorders of horses and cattle.

It is evident that physostigminum should not be used where the intestinal muscles have lost their excitability in the colics due to impacted matter or great meteorisation.

The dose of physostigminum sulfuricum is, according to Professor Dieckerhoff's experiments, from 0.04 to 0.10 grammes, according to the size of the horse.

A one per cent. solution is the most suitable, either for subcutaneous or intravenous injection.

On account of the more severe action after the intravenous injection, veterinary practitioners will do best in employing the subcutaneous injection, in which the larger doses are better supported.

In very large horses it is sometimes permissible to exceed the maximum (0.10 grm.) dose.

At times an animal, from idiosyncrasy, will support a larger dose than others of the same conformation.

In September, the clinical report of a number of cases was published, and since that time Professor Dieckerhoff has employed the remedy almost daily, with increasingly satisfying results.

In the only cases in which it has failed to effect a cure, auscultation of the abdomen showed absence of intestinal murmurs, and the autopsy revealed a volvulus or rupture of the intestine.

With no other remedy can the excitation of peristalsis (the *indicatio-morbi* in the ordinary diseases of the intestines) be so sureiy and safely effected.

Its advantages lie in the quickness and surety of its action, the ease of application, and the absence of danger or the disturbance of other organs.

It will undoubtedly sometimes be advantageous to combine its use with the internal exhibition of neutral salts, or laxatives, or with injections into the rectum.

EDITORIAL.

ARMY VETERINARY RESIGNATIONS.

Within a year four graduated veterinary surgeons in the army veterinary department have resigned their positions. In a department constituted of but fifteen members, this is a heavy percentage to lose in so short a time. The cause of these resignations appears to be the same in each instance—poor pay, no rank and no chance for promotion. Of the fourteen regimental veterinary surgeons allowed to the cavalry by law, ten receive \$75.00 a

month, and four \$100.00 a month. Their allowance:—quarters, fuel, etc., are but little better than nothing, and certainly preclude the probability of a married man accepting them and the position. There is no use trying to ignore the fact that the veterinary surgeons of the army are not properly treated. It is not right to expect of a member of the profession that he shall give his services for the same remuneration as is paid the shoeing-smith, the wagon-maker and the poorest mechanic. It is highly detrimental to the best interests of the animals in the public service, that the position of veterinary surgeon is so surrounded by unbearable conditions that it cannot retain the services of any self-respecting graduate in veterinary surgery. The order of March 27, 1879, providing for the appointment, in the future, of graduates only to army positions, was a good one, in so far as it went, but it needs to be supplemented by a provision of Congress, making the veterinary surgeon a commissioned officer, with sufficient pay and rank to maintain a respectable appearance, and to attract members of the profession, of at least average ability. The way matters now stand, the army will soon be without veterinary surgeons, or with those that are worse than none, for there are graduates in this country, no doubt considered eligible to army appointment, who, as veterinary surgeons, are unworthy of any trust. The interests at stake demand the establishment of a veterinary department, that shall have at least, a reasonable opportunity to prove its efficiency, and it cannot be accomplished too soon.

NUMBERS OF THE REVIEW WANTED.

We will be thankful to any of our subscribers for any duplicate numbers of the REVIEW. We have received several inquiries for missing numbers from persons who have incomplete volumes, and regret that we are unable to supply them. We have also an offer of ten dollars for the first volume of *Fleming's Veterinary Journal*.

CLINICAL CHRONICLES.

BY A. LIAUTARD, M.D., H.F.R.C.V.S.

The magnitude of the responsibility of the veterinarian when called upon to perform surgical operations is probably not sufficiently understood nor appreciated either by the owners of animals or even, sometimes, by the young practitioner, who often, in his desire to secure for his record an opportunity to operate, forgets to advise his employer of the dangers to which his animal is about to be exposed, not only by the operation itself but also by the manipulation of the means of restraint which he may be obliged to employ. It is in that responsibility that the duties of the veterinary surgeon become equal, if not superior to those of the human surgeon. When the latter has an operation to perform he has his patient brought before him and placed under the influence of ether or chloroform, and there is for him but little danger of accidents resulting either from moral influence or from the struggles of his patient. The veterinarian, on the contrary, has seldom occasion to have recourse to perfect anesthesia, but very often is obliged to secure his patient in such a manner that by his movements the operation is not rendered more difficult, or the life of the operator or of his assistant endangered. Large animals have to be cast, and in that position, though their movements and struggles are somewhat limited, they are not so perfectly secured that they cannot inflict upon themselves severe injuries, either to the soft or hard tissues. Amongst the most serious accidents likely to occur is that commonly known as broken back, or fracture of the vertebral column. When this accident takes place (and it may, notwithstanding the greatest caution having been employed) the post mortem examination generally reveals a fracture of one or several of the vertebræ. The fracture which is most commonly met with is at the forward part of the dorsal region, the seventeenth or eighteenth dorsal vertebra being the seat of the lesion, while again, it may go as far back as the lines where the first or second lumbar vertebræ are fractured. The following case, recorded by M. F. Hanshew,

student at the American Veterinary College, illustrates one of these cases, where the animal to which the accident occurred had been thrown with all the care possible, having upon him the halter and surcingle recently introduced in veterinary surgery by Bernadot and Butel,* and to which an ounce of chloral hydrate had been given some time before the operation was begun.

COMMUNITIVE FRACTURE OF THE THIRTEENTH DORSAL VERTEBRA.

BY T. J. HANSHEW (Student).

Sorrel mare, 9 years old, 16 hands 1 inch high; full mane, bang tail; entered in the hospital November 2nd, with the following history:—

She was used as a hunter, and had, in jumping, injured both fore legs. She is quite lame on the off fore leg. Her condition is as follows: Both fore cannons are much swollen, the suspensory ligament is much thickened; there is partial laceration of the tendons which pass behind the metacarpal bones, and she had extensive tendinous windgalls, principally on the off leg.

Though the prognosis was rather unfavorable, and it was very doubtful if she could ever resume her work as a hunter, it was decided to have her fired, and if possible have her returned to a certain amount of usefulness. On November 3d, after receiving a large dose of chloral, attempts were made to operate on her standing up, but being of a high strung, nervous temperament, she would not submit to the application of the actual cautery.

The owner having consented to assume the responsibility in case of accident, she was cast on her off side, the Bernadot and Butel apparatus placed on her, and though she struggled violently, was fired on one side of the off fore leg, and turned over without difficulty and operated on upon the other side. Toward the last of the operation the struggles had subsided.

On removal of the blanket with which she was covered, there was discovered a profuse perspiration and trembling of the hind quarters. Her temperature was 98°, the pulse had become intermittent, the respiration somewhat hurried, and she had lost all

*See A. V. REVIEW, Vol. V., page 29.

sensation and motion of her hind parts from the middle of the dorsal region backwards. The hobbles being removed, the animal raised her head and fore legs, struggled once to get up, then turned her head back, looked at her hind extremities and fell back in a prostrate position. There being no doubt as to the injury she had inflicted upon herself, her owner was notified, and by his consent she was immediately destroyed.

The *post mortem* showed a comminutive fracture of the thirteenth dorsal vertebra, the body of the bone being crushed into several pieces, with an oblique fracture of the annular portion, extending upwards about an inch above the spinal foramen. The spinal marrow corresponding to the seat of the fracture was almost divided, crushed as it had been by the fragments of the bone, the continuity being kept up only by its outside fibrous covering the dura mater. The fourth lumbar vertebra showed a large bony exsostosis upon the body of old standing. All the other organs were healthy. The mare was a long-loined animal, with a somewhat narrow belly.

The regularity with which the dental apparatus develops itself in the buccal cavity is sometimes subject to various changes, either in the number of the teeth, their mode of development or their way of growth. Numerous cases are recorded where the incisors and molars have presented peculiar abnormalities. Double rows of teeth; variations from the regular number; their development in parts of the head where the dental follicle has been carried by a peculiar mode of traveling, so to speak; their presence in the structure of the temporal bone, or in the anfractuous cavities of the sinuses; all these can be found in some of the special works on equine dentistry. We remember a peculiar case where a supplementary seventh molar tooth, situated in the lower maxillary, has given rise to peculiar symptoms of disease which ended fatally. The following case, which was presented to the clinic of the American Veterinary College through the kindness of Dr. John Dougherty, will prove most interesting, not only on account of the number of molars which existed in both jaws, but

in the peculiar way the teeth were worn, the peculiar interference it had with mastication and the diseased condition of some of the bones of the face, the maxillary and the palate bones.

ABNORMAL DENTITION—IRREGULAR WEARING OF THE MOLARS ON ONE SIDE OF THE HEAD—NECROSIS OF THE MAXILLARY AND PALATE BONES.

BY MR. T. S. DENSLOW (Student).

At the clinic of the American Veterinary College, an interesting case of abnormal dentition, in which *forty-four teeth* were found in the buccal cavity, was presented before the students.

The animal was a chestnut gelding, 17 hands high, used for heavy draft, with a mouth showing the characters of an eight-year-old horse, but was much older. The incisors could not meet by a distance of at least five lines. Prof. Liantard recognized him as an old patient of his, one which he had attended to several times for the last twelve or fourteen years, he having been obliged to file his teeth several times in order to enable him to grind his food. The history obtained was that some six months ago he had numerous enlargements along the lymphatics of the head, which subsided; that he had passed bloody urine at some various periods, and had also discharged blood from the nose. When presented at the clinic, he seemed in poor condition; there was a very offensive discharge through the nostrils, slightly bloody, not sticky but somewhat adherent. When the mouth is opened there is an offensive odor of caries discerned at some distance from the patient. The mucous membrane of the nose is sound; the lymphatics of the intermaxillary space are swollen and painful. On opening the mouth, the molars of the left side presented a very peculiar abnormal aspect, their crowns not being opposed to each other, but the rubbing of the teeth taking place from the sides, that of the outside for the lower, and that of the inside from the upper teeth. The teeth were considerably overgrown, and their disposition was such that the jaws could only move vertically, no lateral motion being possible; prehension was very difficult, the animal grasping only a few blades at a time.

Mastication was very painful, as it could only occur on the off-molars, and deglutition was interfered with by the median position of the posterior molars, preventing the freedom necessary at the base of the tongue, where a loose rattling or crepitation could be heard.

In the presence of the condition of the patient, the excessive growth of the teeth and the diseased condition of the maxillary bones, a most unfavorable prognosis was given, and the animal, abandoned by his owner, was destroyed.

Post Mortem Examination.—The muscular structure of both cheeks being cut through, the lower jaw was separated from the upper, and the following unique lesions exposed: The mucous membrane of the buccal cavity offers numerous severe excoriations, especially toward the roof of the mouth, which is much lacerated by the sixth molar, while within a short distance of the median line, there is a seventh supernumerary molar (both of which were so loose that they fell out on the slightest traction.) They had punctured a hole through the palate bone into the nasal cavity, through which food found its way into the air passage. This seventh molar was three inches long and had an additional curious fang, nearly out, long, loosely held in place, and moving at every motion of the inferior maxillary bone. The last alveolar cavity had a large necrosed hole in the bone, due not only to the disease of the bone, but to the leverage exerted by the superior molars, which were grown down. This cavity contained about eight ounces of imperfectly masticated and decomposed food.

Each dental molar arch contained seven fully developed molars.

After boiling, the incisors were found curving straight forward, then bending slightly downward, and were very much elongated. The palatine bone had a triangular notch necrosed on its border, a little to the left of the median line, with a rough and irregular border. The bones of the forehead are much softer and when dry are easily broken, on account of their brittle condition.

EXPERIMENTAL PATHOLOGY.

DIE ÆTIOLOGY DER TUBERCULOSE (ETIOLOGY OF TUBERCULOSIS).

BY ROBERT KOCH.*

In a first series of researches, the author has tried to find the parasitic cause of tuberculosis. After satisfying himself of the deficiency of the coloring processes in use for histological elements, he accomplished positive results by the following method: The microscopic preparation is placed in a coloring solution made of 200 grammes of distilled water, mixed with one cubic centimeter of a concentrated alcoholic solution of the blue of methylene, to which are then added two cubic centimeters of an alkaline liquid, for instance, of potash to the tenth. This mixture must not make any precipitate, even after several days' rest. They are afterwards placed in a concentrated and filtrated solution of vesuvine, and left in it from two to twenty minutes, whether it is a piece of glass upon which has been stretched and dyed a preparation in a fresh state, or, on the contrary, a section hardened in alcohol. The preparation is washed with distilled water, the excess of water is removed with alcohol, and the preparation cleared off with the essence of clover. The specimens can then be immediately examined or mounted.

The treatment with the vesuvine has for its object to remove from the preparation the excess of blue coloration coming from that of methylene to transform this, saturated in a slightly brownish blue.

If this method is carefully followed, all the histological elements, especially the nuclei and their products of desegregation, appear brown under the microscope, while the tuberculous bacteria are of a handsome blue. The contrast is such that these are easily distinguished, even when in small numbers and apart.

Koch has tried this mode of coloration upon a great number of other bacteria, and all are tinted brown, except those of lepra, which has a strong resemblance to those of tuberculosis. However, the leprous bacteria are finer, pointed at their extremities,

* Berlin Klin. Wochens.

and contrary to the bacteria of tuberculosis, are colored with the liquid of Weigert. The bacteria of tuberculosis are very small, and of a length which ordinarily varies from one-quarter to one-half of the diameter of a red corpuscle; seldom do they reach a length equal to the diameter of the corpuscle.

They are found in abundance in all the parts where the morbid process is recent and progresses rapidly. They are also often seen, grouped in fasciculi, in the interior of the cells, as in lepra, but there are besides always some free, especially on the edges of the large caseous collections.

When the height of tuberculous eruption has subsided they become more rare, and are entirely missing only where the morbid process has ceased.

When tuberculous tissues contain giant cells, it is in their interior that bacterian rods are better found; it is even the only place where they are ordinarily, when the tuberculosis progresses slowly; they collect principally in the youngest giant cells.

Without any preparation or coloration, bacteriæ may be seen, providing the parts examined contain plenty, such as the grey granulation from the lung of a guinea pig which had died with inoculated tuberculosis. It is sufficient to add to the piece of granulation a little bloody serum to examine it in a deep porte-object, to avoid the motions of the liquid. The bacterias then have the aspect of very fine rods, with a purely molecular motion, without any trace of movements proper.—*Revue des Sciences Médicale*.

PATHOLOGICAL PHYSIOLOGY.

AWAY TO GIVE IMMUNITY AGAINST SYMPTOMATIC OR BACTERIAN ANTHRAX WITH ATTENUATED VIRUS.

BY M. ARLOING, CORNEVIN & THOMAS.

We have succeeded in giving immunity against symptomatic anthrax by inoculation of the natural virus into the veins and in the tracheo-bronchial canals. Intra-venous injection has even been applied upon a large scale, and its efficiency confirmed.

To-day we desire to call attention to a new way to reach the same result, by injecting under the skin attenuated virus.

a.—The mode of attenuation which we have regulated and applied was suggested by the works of Mr. Toussaint upon the bacteridie of splenic apoplexy (*sang de rate*) which have been reconsidered lately, with brilliant success, by M. Chauveau. Indeed, it consists in the action of heat upon the virulent serosity taken from carbuncular tumors; only, this serosity is first dried at the temperature of 32° in a current of air sufficient to obtain the desiccation before the beginning of putrefaction.

A long series of experiments has shown us that in triturating a certain quantity of virus, dried in the above named condition, with twice its weight of water, so as to evenly hydrate all the particles and in carrying off these mixtures in an oven heated from 85° to 100° , where they are left for six hours, a series of virus, attenuated at various degrees, is obtained. It is important to attenuate only a small quantity of virus at once, and to regulate the heat of the oven in such a way that its initial temperature may be re-established in less than two hours after the introduction of the virus.

b.—When it is desired to employ the virus attenuated by this process, a choice must be established, based upon their activity and the specific or individual susceptibility of the subjects upon which they are to be used; and to fix the dose for a subject accordingly. The dose has, indeed, a great influence upon the result. Thus one may produce a slight disease and vaccinates; another, and stronger, may give rise to a fatal tumor in which the microbes regain all their activity.

After some hesitation, we have adopted the following practice: We make two inoculations, six or eight days apart, the first with virus attenuated by a temperature of 100° ; the second with a virus heated at 85° . The use of the less attenuated virus might be followed by failures, even upon cattle. For sheep, we take 0 gr. 01 of each virus in a dry state; for cattle, from 0 gr. 02 to 0 gr. 03, according to the size. These doses are mixed with one hundred times their weight of water and crushed in a mortar until a mass suitable to be injected under the skin is obtained.

Until the present time we have made the injections under the skin of the lateral face of the neck, and of the internal face of the neck. The animals were re-vaccinated after two weeks, with six drops of serosity, fresh from a tumor, and mixed with one cubic centimeter of water, to facilitate the inoculation.

c.—So far, we have used the attenuated virus in three series of animals, viz., one lot of three sheep, one of three calves, and a third of a heifer of 18 or 20 months old, and a cow of four years. In bovines the inoculations have produced a slight local tumefaction, which disappeared by degrees; in sheep, a large swelling. The first inoculation was followed by an elevation of temperature from 0.2 to 0.7; the second, an hyperthemia from 0.5 to 1. Sometimes the higher elevation was noticed after the first inoculation. All these animals were vaccinated with success. Inoculated at the same time with others, kept as witnesses, with natural virus, they presented slight and insignificant accidents, while the others had severe and almost always fatal sequelæ.

We may notice the great resistance of the microbe of symptomatic anthrax to heat, after a first graduated desiccation at 32°. We have observed in the same condition an analagous resistance to the action of the antiseptics. It is proper to observe, at the same time, that virulent serosities contain specially sporulated batonnets and that their number increases very much pending the duration of the first operation, so that the heat acts upon a virus very rich in spores. These observations served us as guiding ideas in the researches which we have just disclosed.—*Gazette Medicale*.

REPORTS OF CASES.

A CASE OF DISTOKIA IN A MARE—DORSO-SACRAL PRESENTATION—LACERATION OF THE PERINÆUM—RECOVERY.

BY J. B. GALT, V. S.

A messenger came to my house early one morning and said that he had a mare that could not foal, and he thought she was about dying. I hurried to see the patient, as she was a valuable animal. Arriving at the place I found the case to be one of distokia. The mare was down on her right side, unable to rise or to

use her hind parts at all. The vulva was enormously swollen and congested. On inserting my arm up the vagina I found that the muzzle of the foetus was about six inches from the external opening of the vulva. The presentation of the foetus was dorso-sacral, with the left fore leg over the back of the occipital bone, cross-wise, and part of it in the vaginal canal. I at once straightened out the leg, put torsion cords on each fore pastern, and slipped a noose over the head, handing the cord to two assistants, with directions to pull when I gave the word. When every particular requirement for the retraction was made and ready, the traction was made on the cords, the foetus yielding. After a few seconds delay, the foetus was brought away, followed by the envelopes, with a large quantity of fluid. The colt was dead, but of full term. After delivery, the mare laid extended at full length, with all four legs straight and stiff. The pulse was very weak, the temperature low; in fact it was a desperate case. The animal was placed under stimulants, the vaginal canal washed out, and after six hours the mare was raised by six assistants; but unable to stand, she was allowed to lie down, and the same treatment continued. The following morning, found her in about the same condition. She was put in slings on the third day. At that time there was a strong odor coming from the vulva, which was considerably swollen. I punctured the right and left walls of the vagina, and directed carbolized lotions. She remained in about the same condition for several days, but at last her appetite began to return, her countenance improved; pulse became stronger, and she stood better in the slings. On the 11th day after delivery the labia sloughed off, with portions of the mucous membrane of the vagina, leaving, with the laceration of the perinæum, already existing, a ghastly opening. The perineal laceration was treated by sutures and zinc lotion, and the parts kept clean by carbolized washes. On the sixteenth day the mare was taken out of the slings and allowed to move about, but being found very weak, was returned to them and remained there for a week longer, after which she began to rapidly improve, and to-day, after two months of a tedious convalescence, has made a full recovery and has resumed her work.

CHLORIDE OF SODIUM INJECTIONS IN VENTRAL HERNIA.

A. A. HOLCOMBE. D.V.S.

In March, 1882, I was asked to treat a case of ventral hernia in a colt, ruptured by being caught on the end of a sharp picket as he was leaping a fence while a yearling. A few months after the accident a farrier attempted to reduce the hernia by introducing a seaton; but the tumor became larger instead of smaller. The enlargement was about the size of a man's fist, and seemed reducible by pressure. It was determined to try to effect a cure by means of injections of chloride of sodium in solution, which, it was believed, would reduce the hernia and permanently close the sac by the infillation it would cause; accordingly the animal was put on small doses of tincture of arnica for a few days, so that the tendency to inflammation might be diminished, and preparation made for casting by emptying the bowels with an eighteen hours' fast.

When the animal was cast he was placed on his back and an effort made to empty the sac, but this was not possible owing to some adhesions between the omentum and walls of the sac near the opening in the abdominal wall. These adhesions were probably the result of the seatoning which had been done two years before. Seeing that the sac could not be emptied, except by opening it and breaking down the omental adhesions, it was decided to make the injections with the hope that the resulting infillation would reduce the hernia as much as possible, and by closing the abdominal opening around the omentum, prevent its further protusion. Accordingly, four injections, at opposite points, were made of ten drops of a saturated solution of chloride of sodium, and the hernia held in reduction by means of a pad and broad bandage. No result whatever followed these injections, so they were repeated in about two weeks' time without casting the animal, and with fifteen instead of ten drops of the solution. Within twelve hours considerable swelling took place around each point of injection, which by the third day included the entire tumor in a very firm infiltration. The enlargements were tender to pressure, while the respirations were increased in frequency, the heart beat at 50, and the temperature went up to 105°

In about a week the tumor began to diminish in size, and a small abscess formed at one of the points of injection. This was opened, washed out with a weak solution of carbolic acid, and left to heal. Two weeks after the operation the tumor had regained its usual size and consistency, but the opening into the abdomen could no longer be found. The animal was now turned to grass, and I heard no more from him until to-day, when I learn he died about a month ago. A post-mortem examination, made by a farrier, is said to have revealed a tumor in the small intestine, at the point where the omentum was attached to the sac, nearly large enough to close the canal. The patient ran down in condition from the time of the operation until his death.

THE DISSEMINATION OF TEXAS FEVER, AND HOW TO CONTROL IT.

Hon. Geo. B. Loring, Commissioner of Agriculture:

SIR: In accordance with your directions, I respectfully submit the following considerations in regard to the dissemination and prevention of splenic or Texas cattle fever, which have been suggested by Dr. Miller's report of outbreaks in Ohio and West Virginia.

In the first place, I would call attention to the fact that this is a disease with which the veterinary profession is not very familiar. The outbreaks, though frequent, have generally occurred in the Southern, Southwestern, or Western States, in localities where, until very recently, there have been no veterinarians; and when these have happened at the North, the course of the disease has been so rapid that the professional man has had little opportunity to study its peculiarities before it had exhausted itself by the death of all the susceptible animals exposed to it. As a consequence, members of the profession at large have not those clear ideas in regard to its origin, its dissemination, and the best means of suppressing it which we should expect had they been for a longer time in contact with it. And for this reason, while the veterinarian who has had little experience with it may recognize it at once by the symptoms and the post mortem appearances, we

cannot expect him to be as reliable a guide for the measures to be adopted in controlling the plague as would be the case had he watched and studied it for years.

The quarantine of sick animals and infected grounds is so generally applicable to infectious diseases as a class, and has been our chief reliance for so long, that it is not surprising to find it advocated for an affection like Texas fever, which has the same general characters, even though there are peculiarities in regard to it which may render this measure, as generally applied, inexpedient or plainly objectionable. We must not forget, however, that the owners of sick cattle and infected grounds have certain rights as well as the public at large, and that while it is our duty to assist the public in protecting itself by advocating such regulations as are necessary for accomplishing this end, it is equally our duty to be certain that the regulations proposed are necessary, and that they do not bear unduly upon the already suffering parties, or restrict the business of the community further than is absolutely essential.

To make it plain, therefore, what steps should be taken by the local authorities in the case of such outbreaks of Texas fever as have recently occurred in Ohio, West Virginia, New York, and other States, where there is no permanent infection with the germs of this disease, it is necessary to enter into some details concerning the spread of this infection.

HOW IS TEXAS FEVER DISSEMINATED?

Those who have had much experience with Texas fever, who have watched the outbreaks in the Northern States, who have followed its ravages along the border line of the permanently infected districts, and have studied it in its native haunts, are practically unanimous in their conclusion that the Southern cattle may only be separated from susceptible ones by a board fence, or that they may even occupy the same stable for an indefinite time without causing the least appearance of the disease. There is equal unanimity in the conclusion that if these susceptible natives are placed upon grounds, even though these be roads, yards, or commons to which the Southern cattle have had access within two,

four, or six months, they are liable to contract the disease in its most virulent form. On the other hand, it is believed that the sick natives have never conveyed the disease to other susceptible animals either directly by contact or indirectly through the atmosphere or by infecting the pastures on which they run. Having frequently seen sick animals in the same lots with susceptible well ones, and having injected considerable quantities of the blood of recently dead animals beneath the skin of susceptible cattle without any transmission of the disease, I am perfectly convinced that this opinion is correct, and that the sick native animals are in no sense a source of the infection.

In regard to the danger of the disease being spread from the dead carcase we cannot be so certain. My investigations indicate that the germs of the disease exist in the spleen and liver, and it would not be unreasonable to suppose that these organs carried about by dogs or other animals might in certain cases be the means of infecting other pastures. We do not know, however, that this has ever occurred.

The real danger, then, exists in the pastures or other grounds over which Southern cattle, whether sick or well, have travelled, while the sick natives are harmless.

The Southern cattle which convey the infection do not, as a rule, contract the disease, but this rule is not without exceptions. The germs of the disease are within their bodies, probably in their digestive organs, possibly, also, in the liver and spleen, and though when in a vigorous condition they are insusceptible to the influence of these germs, when exhausted by the hardships of travel they frequently succumb to them. There is, consequently, a distinction to be drawn between the sick native animals and those from the South which have sickened; the former do not infect pastures, the latter in all probability do infect them.

We must not expect to find these facts accepted by all who observe this disease, however; on the contrary, they are frequently contested, and nowhere more emphatically than along the border line of the permanently infected district, where the disease is most common, and where it is most important that they should be understood. The experienced sanitarian will not be surprised

at this; he knows that the same is true with all communicable diseases, and that it is precisely where these are most common that there is the greatest doubt as to the manner of their origin and dissemination. Every unbiased man is ready to admit, for instance, that pleuro pneumonia never occurs in this country unless it is contracted from a previously sick animal, because the disease was never known here before it was imported from Europe, and because it never occurs now beyond the area obviously infected, except by contagion. And yet, when we consult the people of the infected districts, we find that many are emphatic in their assertions that the disease occurs spontaneously as the result of certain conditions of the atmosphere or food, and that it does not arise in all cases from contagion. The reason is very plain. The contagion is so generally disseminated that it is impossible to trace a large number of the cases to their origin, and they are, consequently, accepted as spontaneous. If we go to France, we find a still more general acceptance of the opinion that this disease arises spontaneously, and this is even shared by many members of the veterinary profession. But as the disease is becoming more circumscribed, and as greater efforts are being made to trace the origin of the outbreaks, the profession, at least, is gradually becoming convinced that it only arises by contagion from pre-existing cases.

Along the border line for miles beyond the district permanently infected with Texas fever, every road and common is infected in early spring by the continuous movement of cattle, and it is not surprising that many outbreaks of the disease can never be traced to their source. So, too, in many cases where Southern cattle are carried farther North, an unsuspected road or common is infected, and it long remains an unsolved mystery how the native cattle contracted the disease. Again, people frequently forget that foreign cattle were on their roads and pastures, it may be, three to five months before the outbreak of the disease; they are almost as likely to forget that their own cattle have been on certain roads or pastures within three to six weeks; they even forget that they have purchased cattle lately enough to cause the infection, and in all these cases they will assert most

positively that their cattle have had no opportunity to contract the plague in the ordinary way, and that, consequently, it has been carried through the air or has originated spontaneously. A careful investigation, however, generally discovers the infected grounds and the cattle which have caused them, and then every one is surprised that that had not been thought of before.

I mention these facts to show the necessity of the greatest caution in accepting explanations of outbreaks as valid which apparently contradict the great mass of facts bearing on this or any other contagious disease.

Turning now to the outbreak in Ohio investigated by Dr. Miller, we find that both lots of cattle were purchased in the St. Louis stock-yards, and that at least one lot was represented to have been purchased in Southwestern Missouri. Lot No. 1 may have been infected when purchased in St. Louis, or, what is equally probable, it may have been a mixed lot of animals—one or more coming from an infected district, while the others were from farther North and susceptible to the disease. They could not have all been from an infected district, for in that case there would have been no deaths except during the first week after their arrival, when exhausted by the journey. If none were from the infected district, and the infection was contracted from grounds on which they had been yarded during the journey, then the pasture on which they died would not have been infected. There seems to be no data whatever for deciding this point.

In regard to the second lot, the impression conveyed by the report is that they were infected by driving lot No. 1 along the road adjoining their pasture. Considering that the infection has never been positively known to have crossed a fence, I think a more satisfactory explanation is possible under the circumstances. This lot, like the other, being purchased in the St. Louis stock-yard, was very likely composed of some animals from an infected district, and others which were from uninfected localities and consequently susceptible. Indeed, if all had been susceptible we should have expected that a larger proportion would have contracted the disease. The fact that they did not sicken until after

the first cases occurred in the other lot does not bear against this view, since it is a matter of common observation that the disease frequently does not occur until a certain season of the year, no matter how long the pasture has been infected. Thus, cattle taken upon infected pastures in early spring do not as a rule show any symptoms of the disease until August, while those put upon the same pasture in July very often sicken as soon. So that, if each lot had contained one or more animals capable of infecting the pastures, it is not surprising that the disease occurred about the same time in both cases, though one had been upon its pasture a month longer than the other.

In West Virginia the Southern cattle seem to have been divided among a number of farmers, and consequently there must have been abundant opportunity for the infection of roads, commons and pastures. While, therefore, the owners of some of the diseased native cattle may have believed that these had not been upon infected grounds, it is altogether probable that, as has happened in so many other cases, either the owner was not cognizant of all the wanderings of his cattle for the preceding three or four weeks, or that grounds which were not suspected had been contaminated by the foreign animals.

I conclude, therefore, that there is not sufficient evidence in either of these cases to show that Texas fever is disseminated in any other way than by means of the infected roads, yards, or pastures; and I insist more particularly upon this point because it furnishes the chief indications for the measures to be adopted in suppressing such outbreaks.

WHAT MEASURES SHOULD BE ADOPTED BY LOCAL AUTHORITIES FOR SUPPRESSING TEXAS FEVER.

When such outbreaks occur as have recently become so frequent in the Northern States, by the introduction of Southern cattle, it at once becomes a matter for serious consideration with the local authorities to decide what regulations should be enforced to protect the neighboring cattle from infection. The extreme virulence of the disease, and the suddenness with which large herds are almost exterminated, makes it seem imperative

that some very stringent measures should be adopted at once. The alarm is as unexpected as though a fire had broken out, and the emergency is so unprepared for that not unfrequently the ill-considered regulations enforced result in more real loss to the community than would be caused by the disease itself.

From a consideration of the facts which I have gone over, however, it is very evident that it is unreasonable and unjust to compel the owner of the Southern cattle to do more than keep these animals securely fenced upon the infected pasture until after a killing frost, and to bury beyond the reach of dogs any that may die. Where the infected pasture adjoins a road or neighbor's field, on which there are susceptible animals, it might be advisable, for complete security, to build a second fence which would keep the dangerous cattle from coming within a rod of such road or field. But to go upon a man's premises and kill his animals, sick or well, and compel him to pay an exorbitant price for the slaughter and burying, as may be done in outbreaks of this disease by the laws of some States, is an outrage for which there is no justification in the character of the affection.

The Southern cattle may infect pastures and roads, but there is not a particle of satisfactory evidence that they can disseminate the disease in any other way; and after the first really severe frost such grounds are no longer dangerous. If, therefore, these cattle are quarantined upon the infected pasture where they cannot come within a rod of other animals they can do no more harm. The sick native animals do not propagate the disease either directly or by means of pastures; they are consequently harmless, and it is questionable if the authorities should interfere with them, farther than to prevent their sale for food while diseased.

Finally, it must be a very extensive outbreak which will justify restrictions upon the ordinary traffic in the native cattle of any township or county. If a farmer has one infected field, that certainly is no sufficient reason why he should not be allowed to market animals which have not been upon that field since it was infected; and it is even less reason for quarantining his neighbors. It is true that the roads may be infected and that cattle driven

over them may be liable to contract the disease, but this is by no means certain, and if the owner chooses to take the risk he evidently has the right to do so, since he alone will suffer. If a road is known to be infected, a notice should be posted, in the interest of the public, at the nearest cross-road in each direction, warning people of the danger of driving cattle over it; but the owner of susceptible cattle is in no danger while he keeps them from the grounds upon which those from the South have traveled, and he, consequently, needs no such unusual measures for his protection as is applied in a general quarantine of all bovine animals.

It is plain, however, that the proper remedy is beyond all local regulations; that it should prevent the infection of roads, commons, and pastures, by prohibiting the introduction of cattle from the district permanently infected with Texas fever. This is a matter of infinite importance to the country at large, but it is also one that has been and will be attended with unusual difficulties and that will require the greatest wisdom and experience to perfect its many details. It is doubtful if it can ever be accomplished by the States individually, and it would seem that some way must soon be devised by which the National Government can draw a line from the Atlantic to the Rocky Mountains, across which all movement of cattle can be definitely controlled. If we are at present in the absurd predicament that the States are unable to enforce effective legislation because this is interfering with the prerogatives of the nation, and that the latter can do nothing because this would be violating the rights of the States, there certainly can be no good reason, in this practical age and with our present standard of intelligence, why we should not be able to extricate ourselves whenever we are satisfied that this is essential to our interests.

In cases where native cattle are upon infected pastures the *owner* can do something towards checking the progress of the disease among his stock by removing them at once to an uncontaminated field.

Respectfully submitted,

D. E. SALMON, D.V.M.

Asheville, N. C., Sept. 15, 1882.

SOCIETY MEETINGS.

The regular monthly meeting of the New York State Veterinary Society was held at the American Veterinary College, on the evening of November 14th, 1882, with the President in the chair. After the roll-call, the minutes of the previous meeting were read and adopted.

As the essayist had not then arrived, the President called for reports of cases.

Dr. Cattanaeh described a case in which he abstracted two hairy tumors from the back part of the posterior brachial region. They appeared to be two balls of hair, encysted, surrounded with pus, and intermingled with a sebaceous fluid. One was the size of a walnut, while the other was longer. Dr. C. C. Cattanaeh reported meeting with a second similar case in a horse of the same owner.

Dr. Liantard stated that he saw the second case, and had met with similar cases some years ago.

Dr. O. C. Jackson recorded a case of a horse which was brought to him, with the history that he had been unable to swallow anything for four days. On examination, the cause proved to be a corn-cob, which he found firmly fastened between the upper molar teeth, well back. The doctor removed the obstruction, and the horse swallowed readily.

Dr. Coates reported a like case in a cow, in which he also found the obstruction to be a corn-cob in the upper portion of the œsophagus, not fast, but suspended by a cord fastened to the cob, which had become entangled in her molars.

The essayist, Dr. Crane, now arrived, and read a carefully prepared paper on Rheumatism, as follows:

Mr. President and Gentlemen :

Rheumatism is dependent upon the presence in the blood of some poisonous material, which probably accumulates there in consequence of malassimilation. This poison is supposed to be lactic acid, and it is during an effort at its elimination that the

phenomena of rheumatism, especially acute rheumatism, are best studied. It is metastatic in character, and has a predilection for the fibrous, serous and muscular textures, attacking principally the joints, fascia, muscles in various parts of the body, and the endocardium and pericardium.

Etiology.—Cold; dampness; or may occur from other diseases, as influenza; epizootic pleurisy; or from rheumatic diathesis, which may be inherited or acquired; disorders of the digestive and respiratory organs, which load the blood with abnormal and probably acid elements; exposure to draughts, especially when perspiring, causing suppression of the functions of the skin. In regard to season, it prevails most in humid, changeable climates; rare in tropical and extremely cold climates.

Symptoms of acute form.—It is sudden in attack; generally the fever and local manifestations are simultaneous. Sometimes the pain and soreness precede the development of the complaint for a variable period. Dullness, with indisposition to move, followed by extreme lameness in one or more limbs; there may be swelling of the joints, or not. The affected joint or joints will be hot and painful to the hand; the pain differs in different cases. It is not intense, as a rule, as long as the parts are at rest. The least motion is very painful in severe cases. The parts generally affected are the fetlock, joints, hock, stifle, flexor tendons below the knee, the sesamodian bursa, the thecae of the muscles of the loins and quarters, or of the thoracic walls, constituting pleurodynia. The swelling is due to a morbid increase of the liquid in the synovial cavity and into the surrounding structures. The swelling is at first soft, but later on becomes hard. Suppuration rarely occurs. In some cases one or more joints are affected simultaneously, or in quick succession; in others, it is limited to one joint. A peculiarity is its leaving one joint to fly to another. The temperature may be from 104° to 106° F., and in the cow, as high as 109° .

The pulse is hard and bounding, the mouth hot and dry, the breathing hurried. There will probably be costiveness, but may be the reverse. Perspiration is copious. The urine is less in quantity, and of an acid or neutral reaction, and is loaded with

the hippurates of soda and ammonia and hippuric acid. The specific gravity is high, owing to an increase of urea and decrease of water.

If the blood be drawn, the coagulum is firm and large, with a great increase of fibrin. In general, the strength is well preserved. It may attack the heart, but rarely, as endocarditis, with valvular lesions. Pericarditis is less frequent. When it attacks the heart, the pulse is quick, irregular, or intermittent, with a sighing or hissing murmur.

The duration of acute rheumatism varies. A peculiarity of it is it may not pursue a steady, continuous march, from beginning to end. Its course is often marked by fluctuations, as regards the general and local symptoms, especially the latter. Often after a few days the affected joints are free, or nearly so, from pain, soreness, etc., and convalescence seems to be at hand, when suddenly the symptoms are renewed. This may occur repeatedly during the career of the disease.

Acute synovitis might be confounded with acute rheumatism, but in acute synovitis from injury or cold, like articular rheumatism, there is pain and heat in a joint, with distention. But it does not, except in a rheumatic constitution, affect more than one joint, and there is scarcely any or no effusion into the surrounding tissues. The outline of the joint can be distinctly discerned, and fluctuation is readily detected. Often, too, the accumulation of fluid reaches an extent far greater than in rheumatic inflammation, and the febrile and constitutional derangement is not so severe as in active rheumatism, and the affection has no tendency to change its seat. Chronic rheumatism is a mere modification of the former, except that the fever may be absent. It is more persistent and less metastatic; it leads to alteration of structure, as ulceration of articular cartilage, and fibrous and bony enlargements, and in cattle, sometimes to suppuration. It may cause ossification of the walls of the heart. The acute often degenerates into the chronic, and an animal subject to chronic is often attacked by the acute form.

Pathology.—Pathologists disagree as to the poison. It is generally thought to be lactic acid. In man, uric acid is found

in the urine, and hippuric acid and its salts in herbivora. The lactic acid originates by conversion of the starch of the blood into lactic acid, which then combines with oxygen to form carbonic acid and water, and anything that interferes with this change may lead to the accumulation of the acid in the system. Dr. Richardson found that injecting lactic acid into the peritoneal cavity of dogs caused death, not by peritonitis, but by peri and endocarditis.

Some writers look upon rheumatism as an inflammation of the fibrous and serous membranes, the predisposition a deficiency of healthy tone in these textures, rendering them liable to be inflamed by variable temperature. There exists an alteration in the blood, a great increase of fibrine, which is due to faulty secondary indigestion and assimilation, or to an abnormal metamorphosis of tissue and the retention of products of such within the animal's body. In man there is copious perspiration, with an acid or sour smell; in the lower animals there may be the perspiration, but not the odor.

Treatment.—I shall not enumerate all that has been tried and recommended.

I believe it best to commence with a laxative or aloetic purge, followed up by the iodide of potassa and nitrate of potassa or colchicum in combination with nitrate of potash. If the pain is excessive, opium is indicated. I believe aconite of great value. It has sometimes seemed to exert a specific effect. Salicylic acid has been extolled, and was thought at one time it would become a specific for acute rheumatism. I have never had success with it myself.

Tonics are indicated if debilitated. The diet should be light and easy of digestion. Local applications should not be neglected, warm fomentations, flannel bandages, and warm clothing. Electricity deserves more than passing mention. It has done a great deal in the human practice. Liniments containing belladonna, opium, or aconite, are very good, but I think the best local treatment of all is blisters, to promote a serous discharge.

Dr. Coates stated that he favors salicylic acid as a remedy for the disease in plethoric subjects only. In anæmic animals, he considered tonics indicated.

Dr. Cattanach said that he had seen good results from the use of the Turkish bath, and the administration of alkalies internally.

The essayist was tendered a vote of thanks, after which the society went into executive session.

Dr. Coates proposed A. F. Martin, D.V.S., for membership. Dr. Kemp was appointed essayist for the next meeting, to be held at the American Veterinary College on Tuesday, Dec. 12th, at 8 o'clock P. M.

H. T. FOOTE, M.D., V.S.,
Secretary.

REVIEW.

ANIMAL PLAGUES.

BY G. FLEMING, F.R.C.V.S., F.R.G.S., ETC.

The numerous valuable works for which our profession are already indebted to the author of "Animal Plagues" are so well known to veterinarians, and the name that George Fleming has earned for himself as a writer and a veterinarian, is so widely and thoroughly established, that it needs only to mention the publication of a new book from his famed pen, to indicate that veterinary medicine and its literature are again under obligation for an important accession to their means of usefulness. In 1871 the first volume of "Animal Plagues" was presented to the veterinary world, and 1882 sees the continuation of the same work, presenting us with the history of plagues amongst animals from A.D. 1800 to 1844.

The amount of laborious research, the careful perusal of authorities of all kinds, the thorough and minute manner in which every subject must have been investigated, can only be appreciated by a close reading of these excellent works. By these aids the veterinarian of to-day is made familiar with the history of the

outbreak of every disease which has affected domestic animals throughout the world, and almost to modern times; and when the author tells us that this large undertaking was commenced twenty years ago and is only now brought to completion by the publication of this second volume, we cannot avoid a deep feeling of admiration for the courage with which the work has been so successfully brought to an end. And now that the history of these diseases have been made familiar to the veterinary profession, its members will become better and better prepared to combat their development and to oppose their ravages.

George Fleming has done much for the veterinary profession in England. The military and civil practitioner have both seen their professional standing advanced by his efforts in their behalf, but the English speaking world (that of England and of America) will always account his name as one of the foremost in the work of improving the opportunities of veterinary students to perfect their knowledge, by the numerous aids he has placed at their disposal.—[ED.]

THE PRINCIPLES AND PRACTICE OF VETERINARY MEDICINE.

BY M. WILLIAMS, F.R.C.V.S., F.R.S.E., ETC.

(3rd Edition.)

But a few years ago the student of veterinary medicine had, so to speak, but one work at his disposal on "Veterinary Practice," viz., that of Percivall, and in those days, with the exception of Blaine and Youatt, veterinary class books of value were rare indeed. Recently, however, English writers have felt the deficiency, and have set themselves at work to remedy it, and the veterinarians of England and of America are now in possession of numerous excellent works on the various branches of their chosen science. Amongst those which have proved most successful and which have received a well deserved reception, is "The Principles and Practice of Veterinary Medicine," by Prof. W. Williams. The first edition, published in 1874, was soon followed by a second in 1879, and now, three years later, we are presented with a third edition, revised and enlarged by a supplement. Could the

sanguine and ambitious author ask more, as an evidence of the quality of his work and of its value in public appreciation?

The book before us, which is plainly but solidly bound, is brought out by the publishers in excellent style. It is illustrated by seven lithographs and a large number of wood cuts, and is divided into seventy-six chapters of all the various casualties likely to be met in the various organs of the animal. Beginning with an introduction giving the definitions of diseases, we are soon brought to the consideration of the important subjects of general pathology, the subject covering the first twelve chapters of the book. Contagious diseases, as of great importance in our day to the veterinarian as well as to the sanitarian, have received the author's closest attention, and the most recent discoveries in relation to these plagues are concisely treated. Enzootic, epizootic, eruptive and constitutional diseases cover nine chapters, and are followed by the dietetic diseases. From chapter 38 we enter into special pathology, or "local diseases," as they are named, and then we follow Prof. Williams through the various affections of nervous diseases; those of the respiratory organs; of the circulatory system, and of the digestive apparatus, which are extensively treated in twelve long chapters, and this local pathology terminates in five chapters upon the diseases of the urinary and genital apparatus. The last four chapters cover the interesting sections of parasitic diseases, a subject with which, up to a few years ago, the veterinarian had been but very imperfectly acquainted. This excellent work is concluded by a supplement. We think this one of the best parts of the book. We are there treated with three chapters, each one of which is most interesting and will be appreciated by the veterinarian who, wishing to keep himself posted with the recent discoveries in inoculation for the prevention of anthrax, fowl cholera and pleuro pneumonia, will read the first chapter; also to the one who, still an unbeliever in the germ theory (for there are a few of this kind still extant) will study the second chapter; besides which there is left to all those who have never met with that severe disease of sheep, louping-ill, the third and last chapters of this most valuable addition to standard veterinary works.—[ED.]

CORRESPONDENCE.

TEXAS FEVER IN KENTUCKY.

DANVILLE, KY., November 6, 1882.*Prof. Liautard:*

Dear Sir.—Texas fever has been prevailing to an alarming extent among the herds of Lincoln, Garrard and Boyle counties, and also several counties north of the Kentucky River, this State. The disease was brought in here by importations of “Tennessee cattle,” so called, but which cattle really came from Georgia and Alabama. Such report may be of interest to the REVIEW.

Respectfully, &c.,

GEO. C. FAVILLE, D.V.M.

VETERINARY JURISPRUDENCE.

DECISION IN A CASE OF HORSE SALE.

BY CH. PEABODY, D.V.S.

The plaintiff, Wm. C. G. Phetteplace, sold to Dr. Traver, on December 28th, 1881, a chestnut gelding, warranting the same to be sound, taking a horse and allowing for it sixty-five dollars and a note for one hundred and fifty dollars, for four months, in payment for the same.

A few days after, Dr. Traver noticed the horse lame, and asked my opinion about it. On examination I found two large spavins, the one on the nigh leg being the largest. I informed the doctor of the fact, and advised him to sell the animal, not knowing at the time that he had recently purchased him. Not hearing anything further from the doctor, and seeing him use the horse every day, I supposed he had come to some settlement, until September 29th, 1882, when I was summoned to appear for the defendants.

The plaintiff sued for the recovery of the amount of the note. The defendants wanted to show that the horse was not as represented when sold, and as warranted. Testimony went to show to that effect by Mr. Thurber, myself and others.

The defendant claimed that there was no warranty given; merely an expression on his part, as far as he knew, that the horse was sound and had never been lame.

The doctor had worked this horse ever since he had owned him, December 29th, 1881.

The jury gave the plaintiff seventy-five dollars and costs of the Court.

CHARGE TO THE JURY BY HIS HONOR, JUDGE STINES.

Gentlemen of the Jury :—The plaintiff in this case sues for and upon a promissory note. There is no dispute between the parties that the note was executed, and it is produced, and that proves all the plaintiff is required to show upon his side of the case.

The defendants, however, claim that notwithstanding this note, they are not liable to pay, at least the full amount of the note, because it was one given in part payment for a horse that they bought of the plaintiff; that the plaintiff gave them a warranty as to the soundness of the horse, and that warranty having failed, they are entitled to have the price of the horse reduced on that account.

When a person undertakes to sell a thing to another, and, as a part of the contract, asserts a fact with reference to that property which is the subject of that contract, that is termed in law a warranty. It is not necessary that a person should use the term, "warrant." It is not necessary that he should say, "I warrant this to be thus and so." But if one is asked, with reference to a horse, for instance, "Is he sound?" and he replies, "He is," that is a warranty. If he is asked, "Is he sound?" and he replies, "He is, as far as I know," and the owner knows that there is an unsoundness about him, that is the same thing. In this case, the defendants assert that there was an absolute and express warranty of the horse, by reason of the unqualified statement of plaintiff that the horse was sound. The plaintiff says that he was inquired of, with reference to this horse, as to its being sound. "They asked me if the horse was sound; I told them the horse was sound, so far as I knew anything about him." And then, in another answer, he says that he knew no out about him. Now,

while the law is that when a person expresses simply an opinion about a piece of property, that is not a warranty, yet if he expresses an opinion with reference to that property, or expresses a fact in the form of an opinion, when he knows the contrary to be the fact, then he cannot shield himself under the mere form of the expression of an opinion. In this case I did not consider, and do not consider, any material difference, or any point upon which the jury need to be troubled in this matter, for the reason that if the language, as stated by the plaintiff, was that the horse was sound so far as he knew, yet being a horseman himself, and offering himself as an expert upon the stand, and the injury being of such a character as such an expert and horseman must have known, therefore if the injury existed at all, or if the unsoundness existed at all at the time of the sale, it appears from the testimony that the plaintiff must have known of it; and therefore, whether the language was in the unqualified form, as claimed by the plaintiff, if there was a spavin upon this horse at the time he was sold, the plaintiff himself, being a horseman, and supposed to know about these things—why, if he knew of it at the time, there would be no difference between the two. Nevertheless it is always a question of fact for the jury to determine, whether there was a warranty or not, and it is so in this case. When in the trading for property a man asserts a fact, and it is relied upon by the other side, that amounts to a warranty of the property. When he asserts a fact, I mean, with reference to which the purchaser is ignorant. If a man undertakes to warrant that which another can see with his own eyes, the purchaser is not supposed to be deceived in buying under such a warranty.

For instance, if a man warrants a horse to be entirely sound, and one ear is gone, any one can see that there could be no action upon such a warranty as that. But when a man asserts a fact of which the buyer is ignorant, and with reference to which the seller is supposed to have knowledge, that amounts to a warranty; but when a man expresses simply an opinion about property with reference to which he has simply formed a judgment, then that is not a warranty. As, for instance, suppose one was to ask the seller of a horse if he was able to do a certain kind of

work, and he should answer, "I should think he would;" that evidently would be a mere expression of opinion, and would not amount to a warranty. It is for the jury to determine from the language of the party whether the seller wishes to convey to the purchaser an idea of the existence of a fact upon which the trade was founded and based. If so, it amounts to a warranty, no matter what form or expression was used between the parties. Therefore, the first question you have to settle is, Was there a warranty? If the language was as claimed by the defendant, it was a warranty. If the language as claimed by the plaintiff, that the horse was sound so far as he knew, and from his experience and knowledge of horses and the nature of the defect, you believe he must have known of it at the time, then it would be clearly a warranty. That is a question of fact, however, for you to pass upon, as to which it was. If it was a mere expression of opinion on the part of the plaintiff, and the defect was not of such a character as to lead you to believe that he must have known of it, then it would not come within the definition of a warranty; if there was no warranty, then, of course, there is no defence to this note, because their entire defence is based upon the claim that there was a warranty of the horse and that the horse has proved unsound. So that is the first question for you to consider.

Secondly, if there was the warranty, was the horse unsound at the time of sale. It is not a question as to whether the horse became unsound afterwards, but was he sound at the time. And the fact of his becoming unsound afterwards is only a circumstance which the jury are entitled to consider for the purpose of throwing light upon the question as to whether he was unsound at the time of sale. The defendants testify that, although noticing a peculiarity in his gait at the time of purchase, they were not aware of the fact of his unsoundness until some time after the purchase, and they offer testimony to you for the purpose of showing that the nature of the unsoundness and the condition of the horse at the time was such as to raise the presumption that the horse must have been unsound for so long a time as to cover the time of the purchase. In other words, that it was a kind of injury or defect that must have existed longer than the time

which they had owned him, and that, therefore, he must have been unsound at the time of the sale. Upon the other hand, it is claimed that there was no evidence of unsoundness at the time of the sale, and that an injury of that character might arise within the period of their ownership, and from various causes. It is for you to say which, upon the testimony, you are led to believe. If the horse was unsound at the time of the sale, and the burden is upon the defendants to prove that he was, and there was a warranty, then the defendants are entitled to a reduction of the purchase money. If there was no warranty, or if from the testimony you are led to believe that the horse was sound at the time of the sale, and that this injury or defect came upon him after the sale, then, in either of these events, the defendants would not be entitled to any reduction, but the plaintiff would be entitled to recover the full amount of his note. These are the two questions of fact which you are to pass upon and settle. If you find that there was a warranty and the horse was unsound at the time of the sale, then the defendants are entitled to have this note which they have given as part payment for the horse reduced by the amount which they have suffered by reason of that particular unsoundness. That is to say, the measure of damages in the case of a breach of warranty would be the difference in the value of that horse on account of that unsoundness. How much would that defect depreciate the value of the horse? How much have they suffered on account of that warranty not being true? As the plaintiff's counsel has stated, I have heard no testimony in this case that shows in dollars and cents how much that would be. Witnesses have testified that it would depreciate the value of the horse; to what extent has not been shown; and, therefore, it is for the jury to determine upon the testimony that they have heard, considering the price of the horse, its value, as stated upon the one side and the other; the nature and extent of the lameness, and the nature and extent of the injury, the time of its continuation, how far it would interfere with the beneficial use of the property by the defendants, and such circumstances as those. Taking all these things into consideration, it is for you to say if you find there was a warranty and a breach of it, how much that

would depreciate the value of the horse, deducting that amount from the amount of the note, the plaintiff would be entitled to recover the balance, whatever it might be.

Mr. Wilson, for the plaintiff: I desire to except and object to that part of Your Honor's charge which has just been given with reference to the right of the jury, under the testimony, to find the damages as claimed.

Judge Stines: We do not take objections in that way. If you have any requests to make we will hear them.

Mr. Wilson: I request your Honor to charge as follows:—There being no evidence in the case of what the amount of damages is, the jury are not warranted, in the absence of such testimony, in finding any other amount than the amount of the note. The jury would not be warranted in finding any thing else.

Judge Stinis: That I decline, gentlemen. The defendant, of course, is bound to prove there is some damage, and if there are no sufficient data given in the case for the jury to determine what the damages are, they can come to no conclusion on that point. But it is not necessary for the man to show in dollars and cents, by witnesses, what the damage is, because that would, after all, be but the opinion of the witnesses, and the opinion of the jury would have to control eventually. If, from the nature of the injury and the condition of the horse, and the circumstances attending the case, you are satisfied that there is a pecuniary damage, then, from those circumstances, you are warranted in asserting it.

Mr. Wilson: That is just what I objected to, that portion of your charge.

NEWS AND SUNDRIES.

PLEURO-PNEUMONIA.—New outbreaks of contagious pleuro-pneumonia are reported in Caroline County, Maryland.

NORTHERN CATTLE IN TEXAS.—Texas cattle raisers state that Northern cattle sicken and a great many die when introduced into their State.

ARMY VETERINARY MATTERS.—Junior Veterinary Surgeon Poulson, 7th Cavalry, has sent in his resignation, to take effect Nov. 30, 1882. Veterinary Surgeon C. L. Hingston, 3d Cavalry, has sent in his resignation, to take effect Nov. 30, 1882.

LIBERAL DONATION TO A VETERINARY COLLEGE.—A subscription of \$10,000 from Mr. J. B. Lippincott for the establishment of a veterinary college in connection with the University of Pennsylvania was received by the trustees of that institution on Nov. 14th.—*N. Y. Sun*.

PLEURO-PNEUMONIA IN PENNSYLVANIA.—Pleuro-pneumonia has appeared among the cattle at Lancaster, Pa. J. H. Saunders of Chicago, secretary of the Cattle Commission, pronounces Baltimore and the farms adjacent a hotbed of the disease.—*Breeders' Gazette*.

SUPERFŒTATION.—A friend sends us a paper from St. Paul, Minnesota, containing the following statement: "Truman M. Smith, the well-known Dayton bluff gardener, reports an interesting freak of nature. He has a young cow, about three years old, which calved on the 3d of May last. On the 28th of September she had another calf. Both calves were perfect in every respect."—*Cultivator and Country Gentleman*.

POISON FOR TUBERCULAR BACTERIA.—The *Lancet* says that M. de Korab has cultivated the bacteria of tuberculosis in bovine blood serum, and after treating some of this preparation with *helenine*, it was found to have lost its infective properties, while similar material not exposed to this drug readily caused tuberculosis when injected into animals. We anxiously await further developments.—*Medical and Surgical Reporter*.

QUARANTINE STATIONS.—The Treasury Department is informed that arrangements are nearly completed at Baltimore, Boston and Portland, for providing shelter and other accommodation for imported cattle, under an appropriation of \$50,000 made at the last session of Congress. The station selected for the Maine district is at Deering, and consists of nearly ten acres of land upon which are located two barns, which, with slight

alterations, can be utilized for the required purpose. The rent is \$300 per annum. It is proposed to erect sheds for the shelter of cattle where the buildings on the land selected are not suitable for the purpose. The Government will furnish only shelter and water, and the owners will have to provide for the care and feeding of the cattle.—*Home Farm.*

INOCULATION OF FROGS.—M. Pasteur demonstrated, two years since, that fowls contracted charbon only when their temperature was lowered, their normal temperature being 111° Fahr. M. Paul Gibier has recently determined that frogs contract charbon when under the influence of relatively high pressure. He placed twenty frogs in tepid water, and inoculated them with charbon virus; five of them contracted the malady. Their blood indicated the presence of bacteria. These elements were larger than those observed in the bovine and ovine species. Guinea-pigs and rabbits were inoculated with the blood of the frogs, and contracted charbon.—*Medical Gazette.*

CHICKEN CHOLERA.—The following is from a correspondent of the New York *Herald* at Zanesville, Ohio: Several experiments have been made during the past five years by different parties for the purpose of preventing the spread of chicken cholera by inoculation or vaccination. We have, during the past two years, vaccinated the fowls in nineteen different yards where the cholera was prevailing badly, and in each yard we left some common fowls not vaccinated, and they all died; but of the 2,000 vaccinated only eleven died, although they were in the same yard with those that were dying daily by the score. We have reason to believe that this chicken vaccination is as effective in preventing cholera among fowls as vaccination is in preventing small-pox among the human family. Vaccinate a hen, and in eight days her system will be thoroughly inoculated; then cut off her head and catch all the blood in some vessel; then pour the blood on paper to dry; a half drop of this blood is sufficient to vaccinate a fowl, and the blood of one hen will vaccinate your whole flock. Catch the fowl you wish to vaccinate and with a pin or knife make a little scratch on the thigh (just enough to draw

blood), then moisten a little piece of the paper with the dried blood on and stick it on the chicken's leg where you scratched it, then let the fowl run, and you need have no fear of chicken cholera. As the result of my many experiments I have dried blood enough, I would suppose, to vaccinate 10,000 fowls, for which I have no use, as I do not sell patent medicines. If any of your readers are enough interested in poultry to try this preventive, by writing to me I will send free of any charge enough dried blood to start with. All I ask is that they send immediately, before blood loses its strength, and report the result of their experiments to your many readers.

EXCHANGES, ETC., RECEIVED.

HOME.—Medical Record, National Live Stock Journal, Proceedings of the Medical Society of the County of Kings, Home Farm, Minnesota Farmer, College and Clinical Record, City and Country, Practical Farmer, Rural New Yorker, Ohio Practical Farmer, Medical and Surgical Reporter, American Agriculturist, Breeders' Gazette, Country Gentlemen, Turf, Field and Farm, American Cultivator, &c.

FOREIGN.—Recueil de Medecine Veterinaire, Archives Veterinaires, Presse Veterinaire, Annales de Bruxelles, Clinica Veterinaria, Journal de Zoötechnie, Review d'Hygiene, Veterinary Journal, Veterinarian, Australian Veterinary Journal, Revue fur Thierheilkunde und Thierzucht.

JOURNALS.—Medical Herald, Midland Farmer, American Grange Bulletin, Our Dumb Animals, Farmers' Magazine, Quarterly Journal of Veterinary Science in India, &c.

BOOKS.—Animal Plagues, Principles and Practice of Veterinary Medicine, Chart of the Muscles of the Horse.

COMMUNICATIONS.—J. Rogers, C. Myers, Jr., A. A. Holcombe, G. Faville, C. Peabody.

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AMERICAN VETERINARY REVIEW,

JANUARY, 1883.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

BY A. ZUNDEL.

(Continued from page 375.)

LAMINITIS.

VI.—*Etiology*.—Laminitis has been attributed to many and the most varied causes, and, among others, has now been ascribed to a traumatic origin, consisting of injuries of the foot; and again, to internal lesions, resulting in the inflammatory process which is characteristic of the affection.

The external traumatic injuries, which it is claimed are those chiefly instrumental, are on the contrary, of very rare occurrence as causes of the disease. Our observations agree with those of H. Bouley, and if there is a traumatic causation for this disease, or, at least, one identical with it in respect to symptoms and primitive lesions, it is nevertheless, certain that its progress is very different; there is found with it an evident tendency to suppuration instead of exudation, and there is no such formation as the chronic process which is found when laminitis is due to an internal phlegmasia.

It has been said in reference to the action of the heated shoe upon the hoof, the percussion of the blacksmith's hammer and the pressure of the shoe and of the nails upon the living tissues, that all these causes together must, as their sure effect, make the foot tender, and stimulate in its constituting structure, the conges-

tion which is the initial phenomenon of founder itself. But this assumption may be successfully contested. Bad shoeing may produce many forms of lameness; never laminitis. It has been said that feet of defective conformation are more commonly affected with founder than those which are well formed. This, however, is not so, and feet with contracted heels are no more predisposed to it than flat feet, as claimed by Girard. Traumatic accidents, as blows, injuries and pressure, produced by stones, crushing of the feet under heavy weights or under the wheels of a truck, etc., may produce a violent congestion of the reticular tissue of the foot, and consequently laminitis. But this founder itself is of too active a character and more complex perhaps, with a natural tendency to suppuration, as we have already said. It must then be considered as varying from laminitis proper, or that form in which the congestion is of a more passive character, or at least internal and somewhat analagous to that which is sometimes observed in the lungs or in the intestines. It might be better described as an "astonishment" (*étonnement*) of the foot, as it is sometimes called.

Laminitis proper is rarely due to a unique cause, but more properly to a number of circumstances or to an assemblage of various causes by which the horse is at first somewhat indisposed—sick in fact; and it is only after various general symptoms that the disease localizes itself in the feet, or, as the old phraseology has it, falls in the feet.

The most effective cause is too abundant, and especially too substantial feeding, which produces plethora by rich blood. It is the use of other grains than oats, as wheat, barley or rye, which especially predisposes to the disease. Latin authors called it *hordeatio* (from *hordeum*, barley), and it is mentioned by Sollysel, Garsault, Gaspard de Saunier, and various hippiatrics. Rodet has observed its bad effects in Egypt and in Spain, where animals were fed not only with those grains, but when they received wheat in spike. Miltenberger had observed the same effects during the war of 1812, in Poland, where the horses were fed with rye. In our days even laminitis is seen breaking out in the years when feed is scarce and when oats have to be replaced by other grains, as is proved by the observations of Bouley, Verrier, Rey,

etc. Artificial varieties of fodder also predispose to founder, though less often ; even oats, when given in excess, may produce it (Solleysel, Blind), and especially if new oats (Hertwig).

The influence of seasons cannot be denied, and it is during the summer months that laminitis is more frequent, while it is rare in winter, as well as in spring and fall. It is to the warm climates of Spain and Egypt that Rodet attributed in great part the frequency of the founder observed in the army horses engaged in campaigning in those countries. It has been also attributed to the sudden checking of the perspiration, and cutaneous chills when the animals are sweating ; a cold bath or the drinking of cold water at that moment having also often been considered as occasional causes.

The work of the horse greatly influences the development of laminitis. It is more frequent in those which are driven at great speed than in those which work while walking, and especially in whose frame an excess of strength is required, and particularly those which labor on rough and stony ground. It is almost inevitable if the animal is well fed and if he is unaccustomed to that kind of work and not trained for it, and most especially if it is during warm weather. This explains why the disease was so frequent amongst post, diligence and coach horses, especially during the period preceding the establishment of railroads, when the expenditure of strength exacted from these unfortunate animals reached the last limits of possibility. More recently, again, during the war of 1870-71, when railroad traveling was more or less impeded, laminitis became more common amongst horses from which an excess of muscular effort was required. It is a frequent and very serious accident among English race horses (Hering).

Laminitis in oxen is due almost exclusively to the fatigue of long journeys and to the repeated frictions of the unshod feet upon the ground. It was very common before the era of railroads in animals brought to markets.

But prolonged rest and inaction also predispose to founder. The disease is frequent in horses making sea voyages. It is not rare to see horses become foundered when they are obliged to stand up during several days in consequence of injuries to the extremities, or other pathological conditions requiring them to be

kept in slings. In diseases of the feet which have required painful operations (toe or quarter cracks, punctured wounds of the feet, quittor, etc.) it is quite common to see an animal persevere in maintaining the standing position, and too often has the leg corresponding to the one first attacked become also affected, leaving both of the anterior or both of the posterior ultimately affected in a serious manner.

It is common for laminitis to follow intestinal congestions, especially if these result from the administration of a drastic purge, as aloes for example, and this is a very serious form of the disease. Tisserand has seen laminitis of the anterior extremities following parturition in mares, and particularly after abortion. Gloag and Smith have observed similar facts. Hertwig says that it sometimes follows rheumatismal affections, especially the acute form.

A metastatic laminitis has been seen following diseases of the chest. H. Bouley does not believe in these cases, and thinks the laminitis is the effect of the quadrupedal standing position, or also the feeding with farinaceous substances in too great quantity. At times founder accompanies malignant fevers, such as anthrax and typhoid attacks, which are always accompanied with a certain alteration of the blood.

VII.—*Treatment*.—In acute laminitis all attempts must tend to remove the congestion of the keratogenous apparatus, or at least to abate its intensity, so as to prevent or diminish the serious sequelæ that may too often follow. To effect this, general or local bleedings have been specially recommended, with antiphlogistic applications upon the congested regions. General bleeding at the jugular is especially indicated; a large bleeding of from five to ten litres, repeated if the pulse or the condition of the disease indicates it. Local bleeding, often recommended, seems to us, generally speaking, to be useless; that of the toe is of difficult performance in founder, as the feet are usually raised from the ground with difficulty, and the operation is quite painful, and may give rise to more or less serious complications. However, in serious cases it can be done while the animal is thrown down, not so much on account of the blood depletion as to prevent the possibility of gangrene supervening. It is more useful in the ox, ac-

according to Lafosse, who recommends to pare the foot down to the quick and to put on the shoe again if the animal has to continue its journey.

The topical applications employed are varied and numerous ; the simplest and most practical is cold water, cold baths at half the leg, taken in running water, if it can be done, and if the animal stands up ; walking in the water is then recommended, if practicable, walking increasing the venous circulation of the part. Instead of running water, ponds, marshy grounds, pools of stagnant water, or even liquid manure may serve the same purpose. In establishments where there are many horses there are special tubs where the water is constantly changed. The animal may be placed in some of these up to his fetlock in an astringent solution. Mathew has invented an apparatus for continued irrigation, consisting of a reservoir of water elevated above the body of the animal : around each coronet is placed in shape of a bracket, a tube of india rubber, perforated with holes opening on the hoof ; from the reservoir runs a tube which bifurcates and furnishes to each leg a descending division connected with the bracket. The water is then allowed to run around the coronet and drip over the foot. Instead of simple water the use of snow or broken ice has been recommended, wrapped in cloth round the hoof ; pads of oakum dipped in solution of salt, sulphate of iron, or alum ; clay poultices mixed with vinegar have also been used. As the heat of the foot has a tendency to rise, the temperature of the liquid or of the topic used must be often changed in order to keep up its antiphlogistic effect. Baths of sulphate of iron are especially indicated in cases of traumatism.

Irritating frictions used as derivatives are also recommended, but their efficacy in this case is at least problematical. Irritation, when the congestion is somewhat passive, is not easy to produce. However, frictions of the hock with oil of turpentine, by the pain they produce stimulating the animal to move and not allowing him to remain in a state of almost complete immobility, may be advantageous. Blisters around the coronet are useful towards the third or fourth day, when plastic exudation or hypersecretion of the hoof are to be feared.

Frog seton is recommended by English practitioners ; Gabriel

says it is a sure means to prevent the separation of the nail. This seems to us unwarranted. Internally, the administration of nitre, cream of tartar, ammoniacal salts, sulphate of soda, are given; drugs which are indicated by the febrile state; alkaline remedies are administered to render the blood more fluid and increase the venous circulation. Aloes, recommended in England and by Hertwig, is contra-indicated, as increasing the disease and facilitating the dropping of the foot.

It has been advised to take the shoes off. This is not only a difficult operation, on account of the sufferings of the animal, obliged to stand up on one leg, but it seems to us useless. Shoeing has not the effect supposed of it in the etiology. If it is well fitted it is not uncomfortable to the foot, while its removal from the shoe, by the hammering it requires, is always painful, and had better be avoided.

It has been recommended to pare the foot, to shorten it, to thin the sole down; but this operation seems to us in many cases superfluous. It is true that the topics will act more readily upon the living tissues underneath, but the advantages thus obtained do not compensate for the difficulty of the operation; at any rate it cannot be done except when the animal lies down.

We shall pass silently the effect, so to speak homeopathic, that English veterinarians pretend to obtain with very warm poultices around the foot, and which have their reasons only when suppuration or gangrene is threatening. Neither shall we refer to the compression of the foot, recommended by Nanzio—a treatment which is much nicer in theory than in practice. In a great number of cases the patient is considerably relieved by resting on a good bed, and this is especially necessary for severe laminitis when locomotion is very painful. However, in less serious cases, walking on soft ground, especially on grass, is an excellent treatment. It stimulates the circulation in parts where the blood has a tendency to accumulate, and controls the venous engorgement of the keratogenous tissue. It has been sometimes recommended to support the animal in slings to relieve him; but as with this one would expose his patient to pulmonary complications, it is better to cast him and keep him in that forced position, being careful to turn him over from time to time.

A dietetic régime, light feeding, during the first days at least, cooling drinks, rectal injections and comfortable blankets are all indicated.

One must particularly watch what takes place in the foot, and for this purpose grooves made at the surface of the foot have also been recommended; but they cannot be made deep enough, as the wall is always there resisting more or less to the eccentric forces of the deep parts.

If towards the third or fourth day there is no marked improvement, especially in traumatic founder, if even the patient becomes worse, if the pulsation at the digital arteries is stronger, harder and more frequent, it becomes necessary at once to thin the sole down, and make a puncture upon the line of demarcation of the sole and wall with the drawing knife. Often then a flow of pus or blood, more or less altered, takes place, the nature of which indicates the progress of the disease. If it is of a grey blackish color, it is evidence that the horny tissue only is affected; while if white, it indicates a greater change. Hertwig advises this operation always, when laminitis is of long duration. He thus produces an artificial seedy toe, which is considered the mildest form of the disease. He recommends to make a deep groove upon this white line so far as there is separation of the wall from the podophyllous tissue, and then combines the treatment with the use of astringent baths of sulphate of copper. We have on several occasions been pleased with this treatment, combining it with the application of a blister around the coronet. It is preferable to the longitudinal grooves, or to the trephining, which is sometimes recommended.

There are numerous cases, however, when, notwithstanding all these rational means, the disease cannot be arrested, and when a fatally chronic laminitis ensues. This must be considered incurable in the majority of cases. It is almost impossible to bring the foot back to its physiological condition, and, above all, to prevent the hypersecretion of the hoof which characterizes it.

However, in case of simple seedy toe, if it is the result of hæmorrhage, or even of suppuration, a cure may sometimes be obtained. Generally, by thinning it down, the entire portion of the wall which, at the toe, the mammæ and the anterior part of the

quarters is superposed to the keraphyllous hoof, without adhering to it, is removed. The keraphyllous hoof, also, is thinned down in its whole extent; then a dressing of hoof ointment or tar is applied so as to protect it from drying and to keep it supple. In these cases the hoof coming down from the coronary band has sometimes united with that flowing over the podophyllous laminae. At other times the seedy toe is only cleaned of its contents, and is filled with medicated oakum, if there is a wound of the podophyllous tissue, or with hoof ointment and Venice turpentine, the whole being kept in place by a wide web shoe. The last treatment seems to us the best, only instead of hoof ointment we employ gutta percha, melted with gum ammoniac, as recommended by Defays. For this there must be no wound, and the cavity must be well cleaned of all substances, or even washed with ether to remove all greasy substances which would prevent the gutta percha from adhesion with the hoof. This course has enabled us to see deep seedy toes recover by the gradual growth of the foot. Hence, the indication to try to obtain an artificial seedy toe as early as possible, as recommended by Hertwig.

When there is thickening of the keraphyllous horn and adhesion with the wall; when, also, the toe is formed entirely by a deformed horny mass, the case is more serious and the treatment more uncertain. It has been recommended, wrongly, we believe, to perform the operation which consists in cutting off all the protruding hoof—to even cut off all the accidental production. To do this the rasp and drawing knife are used, the keraphyllous mass being thrown down as much as possible. D'Arboval has also advised to make with the drawing knife an artificial seedy toe between the internal face of the wall proper, which is preserved, and the anterior face of the podophyllous apparatus, upon which a thin layer is left. This treatment has an advantage over the other of keeping the wall intact, to render easier and more solid the application of the shoe which is to protect the foot and allow the animal to resume his work. This operation, however, is only palliative. It, however, gives great relief, especially in the first steps of chronic laminitis.

Gross has been satisfied with thinning down with the rasp the superior part of the wall, below the coronet, in a width of about

four centimeters, in such a way that from one heel to the other there was only a very thin coat, which he protected with basilicon ointment. The coronet was then stimulated with a little oil of cantharidos. Under this treatment a new growth of hoof is started, not so protruding, and by paring down by degrees the hoof, a new foot was grown in a few months, less deformed and more regular.

Meyer and Gunther say that they have obtained good success with this treatment, which nearly resembles that of Gohier and Dehan, except that with those the entire wall was pared down to a thin pellicle, flexible under the pressure of the finger. Silberman advised to place around the hoof, below the coronary band, after paring it down thin, a band of steel, two fingers wide, which could be tightened by a screw placed at the heels. In this way the secretion of the coronary band was kept under control, but not that of the podophyllous tissue.

Generally in these cases the suppleness of the hoof must be kept up by appropriate topics. It must be cut off when too thick, and a shoe must be applied sufficiently wide in the web to protect the anterior part of the sole as far as the point of the frog. This shoe must be quite hollow on the foot surface, so as to avoid any pressure upon the sole. It must be nailed on principally at the heels, as nails at the toe would not hold sufficiently. Between the shoe and the foot a piece of gutta percha, or felt or leather may be put on. Thus shod, a horse will still do long service, even in cities, and much more in the country.

When there is a wound at the sole, with separation of the part, suppuration, caries of the os pedis, which protrudes through the sole, it is advised to have recourse to a surgical operation. The contents of the abscess under the sole must be evacuated, and the sole thinned down in the entire plantar region. If the bone is carious it is scraped, the necrosed parts are removed, and a proper dressing, kept up by plates under the shoe, is put on. There are a few cases where by this treatment horses have been enabled to resume their work.

Often in chronic laminitis when, notwithstanding the operation and the shoeing, the horse is unable to resume his work, according to H. Bouley, the operation of neurotomy will then be

beneficial. Grad is not of the same opinion. He claims that the relief is then uncertain and only temporary. Jessen, Hering, &c., say that this operation is followed very often by the sloughing of the hoof, and the animals stumble very easily. According to Bravell this operation is followed by a greater growth of the hoof. If the lameness is reduced after the operation the deformity of the foot continues to increase.

(To be continued.)

ACUTE ARTICULAR RHEUMATISM, COMPLICATED WITH SWELLING OF THE GLOTTIS.

BY W. F. DERR, V. S.

As the case appears to me an uncommon one, I have ventured to lay it before the readers of the VETERINARY REVIEW.

On July 10th I was asked to see a brown mare, eight years old, by Dr. Warren of this city. The mare had been out to pasture, and had been brought in on account of not being well. When I saw the mare standing in her stable, breathing with a loud and roaring noise, I thought it at first a case of strangles. Pulse, 83; temperature, $104\frac{1}{2}$; nasal membranes injected; discharge of frothy saliva from the mouth; but could detect no swelling around the throat or glands. Pressure on the larynx, however, produced cough readily. I had her led out of the stall to make a more close examination, but could find no tenderness of the limbs at any joint. I told the doctor that I would withhold my diagnosis until morning, as I was at that time treating some cases of influenza, complicated with rheumatism.

Treatment: nitrate of potash in her drinking water, stimulating embrocation to the throat, with comfortable clothing.

11th.—The throat better, but the left stifle joint so swollen that she will not bear any weight on it or bear to have it touched. Pulse, 88; temperature, 105; respiration, 40. Refuses all food. The least movement would excite her very much.

Diagnosis: Acute articular rheumatism.

Treatment: Sodium salycilate \mathfrak{z} iii, in aqua, \mathfrak{z} x, every four hours, hot fomentations to the stifle, and also administered a dose

of aloes, 3 vii. I had some difficulty in giving this, on account of the state of the throat.

12th.—Swelling has disappeared from the left stifle and gone to right fore knee; throat doing finely, slowly responding to the purgative; appetite returning some. Respiration, 33; pulse, 67; temperature, 104. Salycilate of soda in three drachm doses, in water, every five hours; external treatment to knee same as yesterday.

13th.—Swelling disappearing from knee, no other appearing. Respiration, 18; pulse, 52; temperature, 102½. Will eat a bran mash. The throat has completely recovered. Salycilate of soda 3 iii, in water, evening and morning.

15th.—Convalescent. Treatment: tonics and to be kept in the stable ten days without work.

On the 20th she was brought to the infirmary breathing with a very loud noise, the same as at the first attack. I placed her in a large box stall and had her well covered with clothing. Could, at this time, detect no swelling of her limbs or soreness. Respiration, 29; pulse, 63; temperature, 103½. Treatment: embrocation to the throat, with nitrate of potash in a bucket of water. At 7 P. M. administered, with difficulty, a dose of oil and salycilate of soda, and she was then left for the night.

21st.—Respiration, 36; pulse, 85; temperature, 105¼, with an abundance of saliva from the mouth until it was over the floor. Swelling of right hock and left front knee. In trying to turn her she fell down without bending a leg. Her respiration got greatly excited while down; pulse ran up to 120, and she perspired profusely. I had her well bedded with an abundance of straw, and kept her down as long as she rested comfortably, which she did for a few hours.

Treatment: small doses of aconite and belladonna every few hours, on the tongue, as she could drink nothing, all fluids passing back by the nasal chambers. Applied hot cloths to the swollen joints, and gave injections, as she had no movement of her bowels since yesterday. 5 P. M., swab the throat with the following: tinct. perchlorate of iron 3 i, acid carbolic 3 i, aqua 3 xii.

22d.—Throat better. Nibbles at a bran mash. Pulse, 68;

temperature, 104; respiration, 28. Treatment: swab the throat again, and as she can now swallow again, we, by being careful, again commence giving the salicylate of soda in three drachm doses every four hours.

23d.—No improvement since yesterday, but have the patient placed in slings, to which she takes nicely. Treatment same as before.

24th.—Doing finely. Can begin to eat a bran mash. Swellings of her limbs are beginning to disappear. Pulse, 61; temperature, 103 $\frac{3}{4}$. Continue same treatment.

25th.—Is again approaching convalescence; appetite improving; can begin to move her legs, and after taking away the slings lies down herself, for the first time, this morning. Pulse, 50; temperature, 102. Treatment: the salicylate of soda is to be given every six hours, in three drachm doses.

26th.—Swellings are fast disappearing; appetite good; bowels regular. Pulse, 48; temperature, 101 $\frac{1}{2}$. Apply weak liniment to the joints, with friction, and salicylate soda evening and morning.

27th.—Doing finely; no change of treatment.

28th.—Convalescent. Treatment: ferri sulph., \mathfrak{z} iss; nux vomica, \mathfrak{z} vi; nitrate potash, \mathfrak{z} ii; mix, divide in twelve powders, one to be given evening and morning.

29th.—Sent home, a distance of about a mile. The mare kept doing finely, all but a cough, for which I prescribed iodide potassa in half drachm doses, evening and morning, with a blister to her throat, so that by the middle of August she was doing light work around the city—enough for exercise.

On September 4th the doctor sold the mare to Albert Koch, a livery man of this place, for a good round sum. On the 6th I received word that Mr. Koch had a sick mare. I was astonished to find my old patient in his barn, and in the same condition as heretofore. The disease commencing in her throat, I gave about the same treatment as I had done before. In twenty-four hours the throat was better. Then her limbs began to swell again, which continued for five days, and then the disease began to abate. She was again convalescent on the 14th, with slight swelling, which disappeared in a few days. On the 20th she was

again brought to the infirmary, breathing hoarse and loud, with an abundance of saliva from her mouth. I applied the same solution to her throat, with a little sponge on the end of a flexible rod, and gave the same treatment as I had done before, so that by the first of October she was again convalescent and ready to go home, but considerably reduced in flesh, though feeling in good spirits. On the 7th of October she had another slight attack in the throat and limbs, but nothing like the former attacks. The doctor and Mr. Koch had a controversy about the mare, and I bought her. At the change of the weather she gets slight attacks in her throat, which will last from three to four days, when she will feel as well as usual. On the 1st of November I commenced giving her 3 ss doses of iodide potassa, with liq. arseni. potassa 3 i, in her feed.

She kept on improving, so that by the 20th of November I commenced driving her, and have driven her up to the time of writing this article, December 10th, without observing the least symptoms of rheumatism.

What appears remarkable to me in this case is that the disease always commenced in her throat, and on its disappearing from the throat the limbs would begin to swell. It always made its appearance in the throat twenty-four hours before any swelling could be detected at her joints. There was at no time any swelling of the throat or any of the glands of that region. As I have never read or heard of rheumatism in the throat, I will leave it to you whether my diagnosis of the throat is correct.

HAIRY TUMORS OF THE WITHERS.

BY J. S. CATTANACH, V.S.

On the 21st of last September I was called upon by Mr. D. Mace, of this city, to see a horse that had an enlargement on his off shoulder. It was situated about twelve inches down from the withers, near the posterior border of the scapula, and on a horizontal line with the tuberosity of the acromion spine, was four inches in length, and of a pear-shape, the broadest part being at the base. On manipulation, it seemed a hard substance sur-

rounded by fluid. I suggested an operation, and ten days after, the animal was brought to my place. I made an incision and found immediately under the skin a fibrous looking tumor, on cutting into which there exuded a dark colored fluid almost approaching to black. On enlarging the incision there appeared a substance which at first sight seemed like oakum. I introduced my finger into the sac and emptied it of its contents, which on close examination proved to be hair of a very fine texture, varying from one to three and one-half inches in length, closely matted together, and about as much as would make a good sized side whisker. The animal had been owned by Mr. Mace about six months and had this enlargement when purchased. He would allow the growth to be handled, or even pinched without evincing any pain whatever, but on touching the mane immediately over the enlargement, it would evince great uneasiness, and squirm as an animal would from fistulous withers.

On the first day of last November a bay mare was brought to me from the same owner, having an enlargement similar to the foregoing, but situated on the left shoulder. I made an incision and discovered that the tumor contained hair; did not cut into it further, but sent the animal at once to my friend Prof. Liantard, at the American Veterinary College, as a clinic. This animal had the enlargement when purchased twelve months previously, but differed from the other, as it did not evince any pain or uneasiness on the tumor or any of its surroundings, on being handled. The hair which was extracted in the first case shows at one of its ends a bulb which would suggest a keratogenous secretion. I would suppose it came from the hair bulbs of the mane, which owing to increased activity due to irritation, became detached and after working their way through the connective tissue, finally became located and enveloped with the fibrous sac. Both cases have terminated favorably.

EXTRACTS FROM A DAILY JOURNAL
CONCERNING THE TREATMENT OF GLANDERS AND FARCY.
BY J. P. KLENCH, V.S.

During two years, from June, 1862, to May, 1864, I was em-

ployed as veterinary surgeon by an English company, who were then constructing railroads in the Grand Duchy of Luxembourg, Europe, and had the opportunity of keeping a central hospital for the diseased and disabled horses. I found there a good many horses affected with glanders and farcy, and was allowed to keep and subject them to treatment.

All the horses, numbering 227, had their numbers branded on the left fore-foot, like the cavalry horses in France. A special journal was kept, wherein I marked the days when a patient entered and left the hospital, also the nature of the disease, its treatment and final issue. Besides this journal, I had taken a good many notes, written on loose paper, of which I can now, very unfortunately, find only a few. Thus I was enabled to make a brief résumé of all the cases of glanders that came under my observation, but can only satisfy the readers of the REVIEW with such of the notes as I have on hand.

In publishing these notes I simply intend to make known the facts of my private clinique, with a view to contribute my little share to the history of that terrible disease called glanders, and cannot but express the great regret I feel in being unable to give a complete history of all the cases mentioned in the journal. I will give a faithful copy of my record-book without any correction or comment. This last I will leave to more competent persons. Before beginning this enumeration I wish to say a few words about the presumptive causes of glanders amongst our horses; the police laws as enforced in Europe concerning the contagious diseases; the symptoms of glanders, and the treatment I had used to cure them.

The work of these horses had been one of great hardship and permanent exposure to the inclemencies of the weather. They had to be outside all day, feeding over dinner under a tree, unprotected from the wind and rain, and very often during working hours obliged to stand still every now and then, while rain and wind were coming right down upon them, chilling their body all through. As the railway was being built through a valley, crossing a creek very often, the horses were obliged to wade through the water at some places three feet deep. There were, for one instance out of many, about twenty horses carry-

ing sand from the bed of the creek one mile and a half distant from the tunnel, where mason work was going on. These horses had to cross that creek six times at every trip, making ten trips a day, so that the legs of these animals were constantly wet. I noticed that in less than six months most of these horses showed suspicious symptoms, some of them getting confirmed glanders in a proportionally short time, nearly all commencing with a farcinous swelling of the hind legs. It can reasonably be supposed that the influence of the weather and the frequent wading through the water caused a disturbance in the perspiration of the skin, in the functions of the mucus membrane of the respiratory organs, and also in the vital fluids in general, and thus laid the foundation of the incurable disease of glanders.

But, besides these evident causes of glanders amongst our horses, the sanitary condition of these must be regarded as a very defective one, as glanders had been raging amongst the company's horses for several previous years, and then direct contagion had been spreading the disease amongst those recently bought. The directors of the company were well aware of this danger, and gave orders to all the foremen along the road to separate and send immediately to the hospital every horse that had running from one or both nostrils, in order to diminish as much as possible the chances of direct contagion. The horses were kept in a very good condition; so I am convinced that no case of glanders during my time of service can be attributed to general debility or poor feeding, but that all of them were caused either by direct contagion or the influences of the weather, or the passage from chronic catarrh or old distemper or other chronic disease, grave enough to cause a disturbance in the vital fluids of the animal or to diminish the latter's strength.

The sanitary condition of our horses had always been closely watched by the county veterinary surgeon in Luxembourg. Let me remark here that in all European countries the sanitary laws are very strictly enforced, and that a severe punishment would surely await the veterinary surgeon who would undertake to treat glandered horses without first notifying the Government of it. At various times my infirmary was inspected by the veterinary surgeon of the respective county, and I had to give sufficient

evidence that our suspicious and glandered horses were all kept well separated from the rest of our horses, and especially from the outside. I must call the reader's special attention to this remark, as many of our horses, after having been treated as suspicious and even glandered, were, on their being released from the hospital, considered so well cured (externally at least) and free from any nasal discharge or farcinous ulcer that they could work outside on the public roads without falling in conflict with the national police laws.

In order to avoid any misunderstanding as to the real value of the cases that will be enumerated below, I will give a short résumé of all signs and symptoms upon which I always based my diagnosis.

A horse showing a hard, indolent adherent intermaxillary gland on one or both sides was closely watched; if a sticky, brownish or greenish discharge, with or without any streaks of blood, came from the nostril of the same side, I declared the horse suspicious. If the nasal wing (elevated with the thumb) was infected, showing a rough surface and one or more miliary tubercles, white or inflamed, the suspicion was of a more grave character; if any ulcer was found on any visible part of the Schneiderian membrane, coexisting with gland and nasal discharge, as given above, it was a clear case of glanders. These are the essential pathognomonic symptoms of glanders.

I must again mention the importance of examining the condition of the membrane under the nasal wing. I found many horses that had one or more suspicious symptoms for a long time, without an ulcer ever becoming visible on the membrane, while at the same time an irregular, rough, infected surface, with one or several miliary tubercles located on the membrane under the nasal wing, would clearly indicate the existence of ulcers in the upper parts of the nasal cavity. In my twenty-two years' practice I never found this sign to fail, and do entirely agree as to the importance of this sign with my very old, respected Professor Henry Bouley, of Alfort.

If a bad, one-sided nasal discharge, coexisting with a hard, bad gland on the same side, resisted for a long time a regular treatment without showing any improvement, it was considered of a grave nature, even if no ulcer could be detected.

If horses that had been suspected for some time showed suddenly one or more farcy-buttons, or a farcy cord, or any farcy swelling on any part of the body, and especially the hind legs, the case was treated as one of glanders. A bad coat, an old, chronic, resisting cough, and, especially, the appearance of a sarcocele or any kind of swelling in the testicular gland or its cord would constitute a bad sign; and in connection with two of the pathognomonic symptoms would cause the horse to be condemned as glandered, even if no regular chancre could be seen. I laid a special weight on the character of this cough, for the reason that a good many of the suspicious horses had that symptom at the first visit already, and just such horses were certain to turn out bad in a shorter time than horses who had it not. This cough was quite unlike that of chronic pulmonitis or bronchitis; it was dry, repeating and painful, with a dull, oppressed, profound sound. I would compare it with that of pulmonary emphysema, except that it had more sound. This cough, which I used to call *glandered cough* (*toux morveuse*) was due to the presence of tubercles in the pulmonary tissue.

The general treatment for our glandered and suspicious horses consisted of a tonic arsenical powder, composed of arsenic, gr. xv; pulvis nux vomica, 3ss; gentian and ginger, powder of each 3iii; giving one powder a day for two, three or four weeks. Usually rest was taken every fifth day. In most of the cases, when the nasal discharge was abundant and persistent, one or both maxillary sinuses were trephined and injections made therein with sugar of lead, sulphate of zinc, tannic decoction, tincture of aloes, and even liquor of Villate, according to circumstances.

But the directors asked me to try a "procédé" which, they said, had been employed by their veterinary surgeon in England with tolerable success in many cases. I consented to submit that treatment to a fair trial, though I did not put any faith in it at first; but I must acknowledge that after using it several times I commenced to think better of it, and was willing to credit it with a good effect. The following is the treatment, which, for short, I will call the *English medicine*:

"Diet for twelve hours, then heavy bleeding of from four to

six quarts; again diet for twelve hours, after that give the drench, prepared as given below; then feed for twenty-four hours. After that again diet twelve hours, then bleed lightly from two to three quarts; diet again for twelve hours and give the second drench, then twenty-four hours fasting, and afterward feed well in *secular seculorum*."

The drench is prepared as follows :

"R. Pul. rad. galanque, }
 " nuc gallasum, }
 " Assafœt., } aa ʒ iii.

One gallon of beer; boil the whole in a kettle closed with a bladder for eighteen hours; let it cool off, and give half of that emulsion at each drench."

(*To be continued.*)

DOUBLE PNEUMONIA IN A SEA LION.

BY J. KEMP, JR., D.V.S., House Surgeon.

A female sea lion, belonging to the "largest show in the world," was sent to the menagerie of the Central Park on the 16th of June. She appeared to be in fine condition, but possessed the peculiarity that she did not go into the water as other lions are in the habit of doing, especially at feeding times, unless compelled to do so by the keeper. Her appetite continued to be good, and she ate her food regularly until the second day before her death, which took place in the night of the 8th of December. Her body was sent to the American Veterinary College for post mortem inspection. The following lesions were disclosed: On separating the two thoracic extremities, the chest was found much distended, and the intercostal spaces, far apart, showed the intercostal muscles bulging out, which suggested the suspicion that the trouble existed in the thorax. The animal being placed on her back, a section was made through the costo-sternal articulations, and the sternum removed. The cavity of the chest was filled with a very dark serosity, about three quarts in quantity. On removing the lungs the third or middle lobe of each was

found extensively diseased with pneumonia, in a state of red hepatisation. At some points the lungs seem to be of a livid color, and nearly passing into suppuration. The pleura was much thickened, principally the diaphragmatic portions. The heart was empty. The other organs were healthy. The stomach, however, was entirely empty, with the exception of about three ounces of a dark fluid, containing also a large number of strongyli, some of which had gathered or were collected into a large pouch, imbedded between the muscular and the mucous coat. The uterus presented on the left horn a tumor about the size of a large apple, somewhat oval, soft to the feeling, which on examination seemed to be of a fibro-myoma. The bladder was empty and retracted into the pelvic cavity.

CONTAGIOUS OPHTHALMIA IN CATTLE.

BY A. A. HOLCOMBE, D.V.S.

My first opportunity to see this disease was in the latter part of the summer of 1881, when an outbreak occurred among the thoroughbred and grade shorthorns belonging to Messrs. Wilson & Smith, of Leavenworth, Kans. Whether it originated on the farm, or by contagion, I could not determine. No attention was paid to the outbreak until the second case made its appearance, when I was called to give treatment. The two affected animals were immediately isolated from the rest of the herd, placed in a dark stable, and a solution of sulphate of atropia prescribed. Whenever the first symptoms of the disease made their appearance in any of the other cattle, they, also, were at once isolated, so that in a short time the outbreak was suppressed.

No other cases came to my attention until this summer, when an outbreak took place on the farm of Lucien Scott, Leavenworth, Kans. The first case was in a Hereford calf, brought from Beecher, Ill. The disease began about June 20th, and rapidly spread among the calves, until fifty out of sixty were affected. Soon after the disease appeared among the calves, the cows became affected, and eighty out of one hundred became victims. Five of the calves and ten of the cows had both eyes affected. The disease either exhausted itself with the warm weather, or was cut short by the first appearance of cool weather and rain.

This outbreak, unlike the one previously mentioned, was readily traced to its origin, and was undoubtedly due to the introduction of the diseased calf brought from Illinois. I first saw the cases in July, but owing to lack of means for complete isolation of the patients, the spread of the disease could not be arrested. Many of the herd were so wild that no treatment could be applied, unless they were lassoed and tied, the excitement of which did more harm than the treatment did good. Some of the more quiet animals were placed in dark stalls, and put under atropine treatment. This remedy produces very favorable results when adopted early in the disease (if properly applied), but it is worse than useless when applied to animals running at large.

That this disease is not identical with simple catarrhal ophthalmia seems patent; for all the symptoms are more severe, the eyelids more oedematous, hot and red, the palpebræ and ocular conjunctivæ more injected and swollen, while the papillæ are more turgid and prominent. The discharge is purulent, thicker, more copious, and unquestionably contagious.

Unlike simple catarrhal ophthalmia, the inflammation is not confined to the conjunctiva, but by extension involves the subconjunctival tissue, causing not only a secretion of muco-purulent discharge on the free surface of the conjunctiva, but a sero-plastic lymph infiltration of the substance of this membrane. So, also, is the cornea more often and more seriously implicated.

At the commencement of the disease, the patient sometimes suffers most severely, for as the rapid swelling of the lids comes on, he makes frantic efforts to rub the parts against the stall, fence, ground or forelegs, and some moan or even bellow from pain. The lining membrane of the lids, on eversion, is found to be very vascular, swollen and red. The ocular conjunctiva is also abnormally red and swollen. At first there is only considerable lachrymation, but the discharge soon becomes muco-purulent in character, and contains floating flakes of yellow pus and broken down epithelial cells.

The cornea usually becomes cloudy from infiltration during the second or third day. This infiltration is most marked in the centre, and may cause the membrane to become so opaque as to make the subject temporarily blind. The pressure of the greatly

swollen lids, no doubt, accounts for the lesser infiltration of the outer portions of the cornea, and by cutting down the blood supply determines the inclination to ulceration so often seen at the centre. As the vitality of the membrane becomes impaired from excessive infiltration, the tense condition of the eye, by means of the contained fluids, causes the cornea to bulge at the centre, and it may even protrude between the partly opened lids. By destruction of the superficial layers of the membrane, a ragged ulcer is formed, which leaves a permanent whitish cicatrix on healing.

In no instance have I seen any tendency upon the part of these ulcers to perforate the membrane; all have healed readily on cauterizing with nitrate of silver. Vision, of course, is more or less impaired, according to the extent of permanent infiltration around the cicatrix.

In treating the disease, the first object to be attained is the prevention of its further spreading among the herd. This can only be effected by isolating the diseased ones before they have reached the second stage—the stage of muco-purulent discharge—for the discharge of the first stage is not contagious. Whenever the disease makes its appearance, stable all the affected animals, and put them under atropine treatment—five grains to an ounce of water. If constitutional symptoms appear, give a purge, followed by full doses of nitrate of potash. If ulceration is feared, keep a constant stream of cold water on the eye. When an ulcer appears, cauterize it carefully with nitrate of silver. Keep the healthy away from infected pastures.

EDITORIAL.

REPORT OF THE NATIONAL BOARD OF HEALTH.

We are in receipt of the report of the National Board of Health, which gives us a very good idea of the work done by the Board, and shows how invaluable are its services. It is almost, if not quite, impossible for the people or Government to appreciate the vast saving of life and property by the work of this Board.

These considerations bring us to ask, What good could not be done were a similar veterinary body in existence.

What a vast amount of money could be saved if a "Veterinary Bureau" were established, whose duties would be to prevent the spread of contagious diseases among animals.

That the public is becoming fully alive to the importance of veterinary medicine in our political economy, and that the medical profession is recognizing the standing of the veterinarian as a scientist in this country, is shown by the following extracts from a paper recently read before the Medical Society of the County of Kings, by E. H. Bartley, M.D. In speaking of the discovery of the bacillus origin of zymotic diseases, he says: "*From the science of veterinary medicine we are now receiving our most valuable aid in the investigation of the nature of contagion.* In this country, as well as abroad, great advances are being made by that profession in this direction. We must regret that an active board is supported by Congress for the purposes of research in the diseases of farm animals, while the National Board of Health is allowed to famish.*"

It would seem that both the medical and veterinary professions have something to complain of—the medical profession, that it is not allowed greater liberty and more ample means in investigating diseases, and the veterinary that it is not empowered to check (as it could) the annual ravages of diseases of our domestic animals. Had we a power similar to that delegated to the National Board of Health, the saving to the country from Texas fever alone, not to speak of other contagious diseases, would more than pay the expenses of such a bureau. What we desire is simply this, and it is due to us for what we have already accomplished, that the veterinarian receives exactly the same governmental recognition and aid that is now granted the medical profession. We venture the assertion that we could show, at the end of each year, as good a result as that given now by the National Board of Health.

QUARTERLY JOURNAL OF VETERINARY SCIENCE IN INDIA.

To the English reader of veterinary works it must have seemed strange that veterinary science in India should not before this

* The italics are ours.—[ED.]

have found a representative, except through the writings which have at times appeared in journals published at home, the *Veterinarian* and the *Veterinary Journal*, and it will certainly be with pleasure that the *Quarterly Journal of Veterinary Science in India* will be received by all who are interested in veterinary medicine. The first number, which we have just received, forms a thick pamphlet of 144 pages, and contains a number of articles which will, without doubt, be read with a great deal of interest. The *Journal* is edited by Chr. Steel, assisted by Mr. Fred. Smith and John Henry Steel. The paper has our best wishes, and we hope that through its pages veterinarians will be introduced to many interesting facts connected with the diseases of animals in that part of the world.

THE AUSTRALASIAN VETERINARY JOURNAL.

We have looked with anxiety for our number of this new periodical, and were beginning to have some fear for its life, having missed it for the last five months, when the October number arrived a few days ago. We are always pleased to read it, and hope the editors will see that we receive it hereafter more regularly. We would be pleased to have the missing numbers for July, August and September.

THE UNITED STATES VETERINARY JOURNAL.

This is a new periodical, which has been canvassed for lately in this country. As we have not as yet had an opportunity of examining it, we are unable to speak of it intelligently. We feel in duty bound, however, to offer a few remarks in reference to some *friendly* notices which have reached us. It was without our consent, and opposed to a positive refusal, that the likeness which appears on the upper medallion of the title page was printed. It is a species of notoriety which, to say the least, is in our opinion out of place and in poor taste, and we believe that all friends of the *Journal* will do well in suggesting to the proprietors of the paper the propriety of guarding against the commission of the same error again. It will not be by the illustrations that may appear on the cover of the *Journal* that it will make its way with the scientific papers of this country, but by the value of its information and of its reading matter.

CLINICAL CHRONICLES.BY A. LIAUTARD, M.D., H.F.R.V.S.

Veterinary literature is rich in the history of every variety of tumors. Many records can be found in the pages of the numerous veterinary journals, of various growths, from the most benignant to the most malignant neoplasms. There are, however, some which are so rare that a veterinarian may seldom, and some kinds which he may never meet with, and if he does, it becomes his duty to record them, and give his colleagues the benefit of his observations. Our researches through a large library of veterinary works of various countries having failed to show us any record of dermatoid tumors *per se*; and having had the opportunity, through the kindness of Dr. Cattanaeh, of New York, to examine two in one subject, we are gratified in being able to present their history to our readers, together with the report of one case which happened in Dr. C.'s own practice. We notice these cases not so much on account of any great interest they may possess in respect to questions of treatment; as to place on record a case, which, though it had been already observed by Dr. C., and by ourselves, has not so far we can ascertain, found its way into the veterinary journals.

RARE DERMATOID TUMORS IN THE HORSE.

The subject was a half thorough-bred saddle mare, which was brought to the Doctor for a large lump which had appeared on the left side of the body, a little behind the shoulder near the posterior border of the olecranon border. This tumor was in form irregular, somewhat lobulated, elongated upwards, slightly movable and not painful. The Doctor started to cut down upon the enlargement with a view to its removal, but thinking that it would be instructive to the students of the American Veterinary College, he had the kindness to have the horse at once brought to the hospital. On his arrival the animal presented the conditions already described. A long incision was made in the whole length of the tumor, in a downward direction, and a dissection forward and backward, allowing the removal of a tumor about the size of an English walnut.* As the first incision made by Dr.

Cattanach had partly cut through the envelope of the tumor, we had to use a great deal of care in the dissection in order to prevent the escape of the contents of the sac. When this was removed, it was found that another one, much larger, was imbedded in the cellular tissue underneath. This, after a careful dissection was also enucleated. It measured about six inches in length by one inch and a half in diameter. It is elongated, round at both ends, perfectly closed, and distinct from the first one. The first contained a hairy mass, mixed with sebaceous and greasy substance, moistened by a small amount of pus, while the other, which was soft, was filled with a dark-brownish pus. When teased apart, and dry, quite a large bunch of hairs, long and of the same color with that of the horse was obtained. The incision was closed with five interrupted sutures, and as far as we know, the patient has done well.

The only case we can find on record at all similar to this case can be found in the *Veterinarian* of the year 1856, page 197. The case, however, is very different from those before us, which we believe are the first published, and no instance of which is found in any of our works. In the case published by the *Veterinarian*, the growth was due to a probable fold inward of the skin, a sort of invagination; while in this animal it seems that some hair follicles must have been lost in the cellular tissue under the skin, but had still proceeded in their growth and in their functions, and had surrounded themselves with an hermetically closed sac.

The various reports which have at times appeared in the REVIEW concerning the advantages to be obtained in the surgical treatment of cartilaginous quittor by the removal of the diseased cartilage, and the different opinions which have been expressed as to the propriety of the operation, and the length of time which it would require before an animal, thus submitted to operative treatment, could resume his work, will justify us in presenting our readers with another case where the entire time required before the animal was able to return to his labors was a little over one month. This case would probably have but little interest in the estimation of European veterinarians, who are familiar with

the operation, and are often called upon to perform it, but as it is a comparatively new mode of treatment in this country, and as with few exceptions it will be followed with the same result, it becomes a duty in American veterinarians, to report all cases of a similar nature, in order to induce others to take advantage of an operation which enables us to get rid of a diseased process often very tedious, and often also very serious, if one takes in consideration the possible complications it may involve if improperly treated, and also the long time generally required by other treatment.

CARTILAGINOUS QUITTOR—REMOVAL OF THE QUITTOR—RECOVERY
IN THIRTY-FIVE DAYS.

BY J. S. DENSLOW, Student.

October 10th, 1882, there was admitted to the Hospital of the American Veterinary College, for radical treatment, a light grey gelding, coming five years old, sixteen hands one inch high, of the Norman Percheron breed, head almost white, with white collar marks on the near side of the base of the neck, with the history of a chronic incurable lameness of the off hind leg. He presented, above the inside quarter of that foot, two large fistulous tracts, from which there was an abundant discharge of pus; these fistulous tracts, when probed, admitted the instrument to pass down upon the lateral cartilage. The posterior canal was smaller than the anterior, which was directed inwards and downwards. The diagnosis of cartilaginous quittor was made, with the prognosis that as ordinary treatment of more than *six months* had failed to effect any improvement, the operation for the removal of the cartilage was the most proper to recommend.

After poulticing the parts for two days, on the morning of the 13th October, the animal was thrown on the off-side, the right hind leg removed from the hobble, and brought with the rope over the near fore-leg, where it was secured. The wall was thinned down on the inside quarter, starting from a point corresponding to the anterior extremity of the cartilage in an oblique direction downwards and backwards, in order to reach the plantar border of the wall about one inch from the heel. By an incision made below the coronary band with a double sage knife, this was separated

from the hoof, and the skin separated by a movement of the instrument under it from its attachment to the external surface of the cartilage. Then, with the right sage knife introduced under the skin, the cartilage was removed by pieces, some of which had the greenish appearance belonging to that tissue when diseased. Some pieces, principally on the lower border, were also undergoing calcification, and required to be scraped with the drawing knife. The operation was concluded by carefully avoiding the wound of the synovial capsule of the last interphalangeal articulation, which could be seen bulging out near the anterior lateral ligament of the joint.

A dressing of carbolized solution with balls and pads of oakum was applied, and the animal being allowed to get up, was placed in his stall with his foot in a tub of cold water.

Dressing renewed on the 15th—There was suppuration of a laudable character; the granulations healthy and luxuriant; the foot dressed as before.—Pulse, 42; respiration, 20; temperature, 100; the patient in a good condition.

Oct. 17th—The first steps of the animal are slightly stiff. The pus is not quite so healthy, being somewhat sanious; granulations look healthy; the foot is dressed with carbolized water, and the animal placed in a box stall.

October 18th—Walked nearly naturally; wound and pus are healthy.

October 19th—Cicatricial tissue begins to show around the wound; the animal steps well.

October 23d—The tendency to swelling in the coronary flap begins to subside; the edges of the wound and the old hoof remaining at the coronary band are thinned down; same dressing.

October 26th—A soft spot is detected under the skin on the anterior part of the operated region, which is produced by a little excess of pressure by the bandage.

October 28th—Animal walks well; cicatrization going on rapidly.

October 31st—Continued closing of the wound, which is now only superficial.

November 6th—Animal is shod and allowed indoor exercise.

November 7th—Small cicatrice remaining, but closing very fast.

November 15th—The owner was notified that his horse was ready to go home, and he left the hospital November 18th.

EXTRACTS FROM FOREIGN JOURNALS.

AN EASY METHOD OF DETECTING BACILLUS TUBERCULOSIS FOR
DIAGNOSTIC PURPOSES.

BY GEORGE PIERSAL, M.D.

* * * There is at the present time probably no other subject receiving an equal amount of earnest study and careful investigation with that of the discoveries of Koch, regarding the bacillus of tubercle. While these researches bid fair to yield the most important results, it is no disparagement to that excellent observer to assert that extended investigations into the modifications naturally resulting from the manipulations of other laborers in the same field will alone develope and complete our knowledge of the conditions of existence and life-history of micro-organisms, and determine the exact significance of their presence or absence, from a practical stand-point.

It will be remembered that the demonstration of the presence of this bacillus, as well as its chief distinctive feature, depends upon its appropriation of certain coloring matters, while the ordinary bacilli of putrefactive change remain unaffected. The method heretofore employed by Koch has been very unsatisfactory from the fact of its uncertainty and frequently entire failure. The modifications suggested by Ehrlich yield more uniform results, without, however, overcoming the element of uncertainty. Dr. Heneage Gibbs, in the *Lancet*, has recently given his plan of staining the bacterium, claiming for the method both uniformity and certainty of action.

The coloring matters employed are magenta crystals and chrysodin (chrysoidin). The latter is a brown, staining the ground-substance, but with less intensity than vesuvin. There solutions are required:

(a.) Magenta crystals, 2 grams; pure aniline, 3 grains; alcohol (s. g. 830) 20 c. c.; distilled water, 20 c. c. Dissolve the analine colors in the alcohol, rubbing them up in a glass mortar, adding the spirit gradually until all the color is dissolved, then add water slowly while stirring. Keep in a stoppered bottle.

(b.) Saturated solution of chrysoidin in distilled water; add a crystal of thymol to prevent deterioration.

(c.) Dilute solution of nitric acid, one part, and two of distilled water.

The following is the process of staining suspected sputum:

Spread a thin layer of sputum on a glass cover, and allow it to dry. When quite dry, pass the cover two or three times through the flames of a Bunsen burner, and allow it to cool. Filter a few drops of solution *a* into a small watch-glass, and in this fluid place the cover, with the charged surface downwards, taking care that no air bubbles are present. Let the cover remain in the staining fluid fifteen or twenty minutes; then wash it in the acid solution, *c*, until all color has disappeared; then remove all the acid with distilled water, when a faint color again becomes visible; then, in the same manner, subject the cover to a few drops of solution *b*, filtered into a watch-glass, allowing it to remain several minutes, until it acquires a brown color; wash away all superfluous fluid in distilled water, and then place the cover in absolute alcohol; afterward dry it properly in the air, place a drop of Canada balsam solution on the cover, and mount.

* * * In a successfully stained preparation, the bacilli are readily seen with a good $\frac{1}{4}$ or 1-5 inch objective, being well exhibited with a $\frac{1}{8}$ or 1-10 power.

In commenting on the diagnostic value of the presence or absence of these micro-organisms, Dr. Gibbs states that in cases of undoubted phthisis he really found them. In those cases presenting suspicious symptoms, some yielded the characteristic bacilli, while in others it was absent. In duplicate slides the putrefactive bacilli remained unstained by the magenta process.—*Abstract of an article in the Western Medical Reporter. Am. Monthly Microscopic Journal.*

EFFECTS OF COLD UPON THE VITALITY OF TRICHINÆ.

BY M. PAUL GIBIER.

I have the honor in the name of Mr. Bouley and my own, to present the results of experiments we made together upon the vitality of trichinæ found in American meats.

The vitality of the parasites existing in hams was observed before freezing, by the following methods:

1. By heat. In warming slowly the platinum of the micro-

scope, the little animal was seen moving spontaneously when the heat reached 40° .

2. In coloring the preparation with the blue of aniline, the violet of methylaniline, or the picrocarminate of ammonia, the trichinæ remained transparent and would not become colored for several days. But if the blade porte object was strongly heated, the trichinæ after moving rapidly, would make a quick motion, become immovable, and would color rapidly.

3. Five young birds were fed during eight days with trichinous meat, first unsalted. In the fœces and intestines of these birds a large number of living trichinæ were found.

The freezing was carried to 20° in one instance, and to 15° in another. In the first case the meat remained exposed for four hours to a dry cold of 27° , and in the second to a cold of 20° for six hours. The temperature was indicated by an alcoholic thermometer placed in the center of the ham.

The cold was obtained by the apparatus of Carré, analagous to that of M. Mignon and Rouart, which produces a cold of 20° and 25° in a circuit of about twenty cubic meters.

The examination of the frozen meats has shown that all the trichinæ they contained were dead. The means used for this observation were the same as the preceding, and the results of the examination are as follows:

1. Under the influence of a moderate heat, the trichinæ show no motion. When heated more they show the same passive movements as muscular fibres.

2. Submitted to the action of the coloring substances above named, they became strongly colored in a few minutes.

3. Five young birds of the same family and same age as the others, were fed for an equal length of time with the same meat which had been frozen. In the fœces, and equally in the intestines of these birds, the most careful microscopic examination failed to reveal the presence of one single trichina. Cold had killed them, and digestion had removed them as lifeless organic elements.

It seems settled that the temperature of 0° is certainly seriously injurious, if not fatal, to trichina. Indeed, fragments of meat, infected with these nematoids living, were closed between two slides of glass and placed in melting ice for six hours. After

this length of time we waited a few hours more before coloring these with the blue of aniline. The trichinæ were colored after two hours and a half, and under the stimulus of heat showed no movement.

For several weeks the frozen meat has not changed in aspect, and presents no difference with that which has not been exposed to cold. This agent seems not to destroy the effects of salting or smoking.

It is proper to remark that similar effects of cold upon trichinæ have already been observed by some of the professors of the School of Medicine of Marseilles.

It is thus well demonstrated that the cause of public hygiene has in the use of cold a powerful means of rendering trichinous meats harmless.—*Société de Biologie.*

SOCIETY MEETINGS.

NEW YORK STATE VETERINARY SOCIETY.

The regular monthly meeting of the New York State Veterinary Society was held at the American Veterinary College, on Tuesday evening, December 12th, at 8 o'clock, with the President in the chair.

After the calling of the roll and reading of the minutes of the previous meeting Dr. Kemp read a paper on Azoturia.

Mr. President and Gentlemen :

In selecting a subject to present before the Society this evening I have purposely sought one which will admit of much discussion, feeling assured that the views expressed by the older members will be fraught with advantage to the writer and the younger members present.

The term azoturia is one of recent production, proposed by Williams for a disease which has long since been recognized in human medicine, and described under the name of uræmia or uræmic poisoning, and mentioned by various veterinary authorities as hysteria, hæmaturia, sprain of the psoas muscles, etc. It is the causation of the violent symptoms presented in

our animals during an attack of azoturia, and the treatment of the same, to which I beg to call your attention this evening. With the symptoms we are all familiar. The suddenness of the attack, which comes on while the animal is performing its labor; the violent spasmodic contraction of the gluteal muscles, preceded by uneasiness and possibly a breaking out of profuse perspiration; the cramp of the flexor muscles of the phalanges, which causes a knuckling forward of the hind fetlock joints, rendering the standing position impossible in the great majority of cases; the retention of urine, and the dark coffee color of the same when removed, are objects familiar to all.

By the processes incident to the great function of nutrition, the animal receives sustenance mainly from two great classes of food, viz., carbo-hydrates and proteids. It is to the latter class of food we will confine ourselves this evening, and endeavor to attribute to an excessive quantity of this class, the morbid phenomena of azoturia.

We know that the albuminoid class of food, after undergoing the process of digestion by which it is converted into soluble peptone, enters the circulation directly by absorption. We know also that albuminose, after being appropriated from the blood by the tissues, undergoes the process of oxidation, and leaves the body chiefly in the form of a crystalline, nitrogenized, excrementitious substance, which we call urea. But albuminose is appropriated by the tissues only in quantities commensurate with bodily waste. Excessive quantities of nitrogenized food taken into the alimentary canal are readily digested, and pass by osmosis directly into the circulation; but the tissues being capable of assimilating only a certain amount, which is regulated by the physical exertion to which an animal is subjected, any excess in quantity is stored up in the blood during physical inactivity, until not only the solid tissues of the body, but the blood itself is surcharged with albumenoid matter. Now, upon a certain degree of muscular exertion being performed, rapid oxidation occurs, and we have the formation of creatinine, creatine, uric acid, and finally urea, to the excessive quantity of which the toxæmia is due.

The urea accumulating in the blood beyond certain limits acts in a manner analogous to certain poisons introduced from with-

out, such as strychnia. Its poisonous effects are made manifest especially in phenomena pertaining to the nervous system. The exact manner in which it produces excitability of the nervous centers is impossible, at the present time, to explain. We know that urea in the presence of water is readily convertible into ammonium-carbonate. Especially is this apt to occur in the presence of mucus, which seems to possess a catalytic action—and it has been suggested that its toxic properties are made manifest subsequent to this conversion.

That urea is the direct cause of the morbid phenomena, there can be little doubt. The history in every case points to this. The owner will tell us that the animal has not performed his usual amount of labor for several days previous to the attack, during which time he has received the usual allowance of food, which probably consisted of oats, which contain a large percentage of nitrogenized matter. Examination of the urine again strengthens the theory advanced. It is in every instance loaded with the products of tissue waste. Not only is the urine loaded with urea, but the presence of ammonia in considerable quantity is evident, and the existence of ammonia in the blood is readily demonstrable in bad cases.

The presence of excessive quantities of urea in the blood causes functional disturbance of the nervous system—violently stimulating the motor tract of the spinalcord, thus producing tonic contraction of muscles, followed by coma, convulsions and death. The lumbar portion of the cord is primarily most affected, and muscles supplied by nerves radiating from the sacro-lumbar plexus are thrown into a state of violent spasmodic contraction. Paralysis does not exist during the early and acute stage. Excessive contraction of muscles renders the standing position difficult, but sensation is unimpaired, and considerable motion is possible. Coma is apt to precede a fatal termination, although death is often produced by asphyxia.

The therapeutical indications, clearly, are to eliminate from the system the exciting cause of the disease by promoting the excretion of the urea. With this object in view, hydragogue cathartics are usually administered at the earliest moment possible. As plethoric animals are invariably the victims, the abstraction of

blood in large quantities is advisable, and has been followed by good results. By diminishing the quantity of the blood, the quantity of the poison is lessened, and absorption of the cathartics hastened. The kidneys usually act freely enough, although in the latter part of the disease diuretics are indicated. Agents which stimulate the functions of the skin are advisable, and the Turkish bath, if practicable, would doubtless be of great benefit. There are no known means of neutralizing the urea in the blood, or protecting the system against its poisonous effects.

In the discussion that ensued Dr. Coates stated that he agreed with Williams in the disease consisting in a hypernitrogenized condition of the system. He doubted that carbonate of ammonia is found in the blood, but considered that it is formed in the bladder from the decomposition of the urea.

Dr. Kemp said that he had found carbonate of ammonia in the blood taken from an animal shortly after dying from azoturia.

Dr. Liautard, in the course of a few remarks upon the subject, said: The pathology of azoturia is a mystery. The rapid development of the symptoms is unaccounted for. The history is always the same; but why is it that horses with a like history so seldom develop the disease? The pathology requires extensive investigation, microscopically, chemically, and analytically. As to the treatment, cathartics assist in relieving the system of the blood-poison. Any means to relieve the system should be resorted to, but the great difficulty is to get any cathartic to act quick enough. I remember two ounces of Barbadoes aloes having been administered to a small horse suffering with this disease in our hospital. I expected fatal results from it, but the animal made a good recovery with scarcely any purgation. Cathartics do not seem to act, no matter what doses are given. I do not consider the Turkish bath sufficiently effective to relieve the system. Morphine should be administered to keep the animal as quiet as possible.

Dr. Burden recounted his experience in several cases, especially noting some recoveries in which the animals resumed the use of one hinder extremity before the other.

A vote of thanks was unanimously awarded to Dr. Kemp, and the Society went into executive session.

Dr. Martin was elected to membership.

The Secretary read a letter from Dr. Madison Bunker, of Lowell, Mass., reporting a case in which a cow was stricken with paralysis of the hinder extremities some ten days after calving. He found the uterus partly filled with pus, not very foetid, which he emptied, and then cleansed with a carbolic solution. He administered purgatives, and a rapid recovery ensued.

His letter was acknowledged with thanks.

Dr. Fred. Saunders was appointed essayist for the next meeting, to be held at the American Veterinary College, January 9th, 1883, at 8 o'clock P. M.

H. T. FOOTE, M.D., V.S., Secretary.

PRESENTATION.

On the occasion of the closing of active operations in connection with the stamping out of the Picton Cattle Disease, Dr. McEachran, the Veterinary Inspector in charge, was the recipient of a testimonial in the shape of a handsome *Nova Scotia Gold Chain* accompanied by the following address, which was presented by Mr. George Caswell, on behalf of himself and fellow officers :
To William McEachran, Esq., M. D., Veterinary Inspector, Picton.

DEAR SIR:—On the closing of the operations in connection with the stamping out of the disease among the cattle of this county for this season, we, the undersigned officers employed under you in the work, beg to ask your acceptance of the accompanying chain as a small token of our regard and esteem for you personally, and also as an expression of our appreciation of the efficient manner in which you have conducted the measures for the stamping out of the disease. We would also express our thanks to you for the many acts of kindness and consideration shown to us personally by advice and assistance in the carrying out of our various duties, and would further testify of the uniform kindness and consideration with which you have dealt with the farmers and others with whom, in the discharge of what were often unpleasant du-

ties, you have had to deal. Wishing you a safe journey homeward and prosperity for the future, we beg to remain

Yours sincerely,

GEORGE CASWELL,
JOSEPH GRANT,
JAMES GRANT,
JOHN D. McQUEEN,
ALEXANDER FRASER,
LAUHLIN McINNIS,
PETER McINNIS.

Dr. McEachran replied in suitable terms, thanking them for their handsome expression of good will. He said that while the active operations were for a time suspended, he thought that it was the intention of the Minister of Agriculture to recommence active operations early in the spring, and hoped that another season would see this county completely rid of the plague which threatened ruin to so many.—*Colon. Standard, Pictou, N. S.*

VETERINARY SURGEON WANTED.

Dr. Zuill, of Philadelphia, has sent us a letter from Mr. O. Guenderoth, 434 Mitchell street, Milwaukee, asking to correspond with a good veterinary surgeon with a view to start practice in that city. It seems by the letter that at present there is no veterinarian in the city of Milwaukee.

NOTICES.

The position of House Surgeon to the Hospital Department of the American Veterinary College will be vacant on or about the 1st of March next. Candidates may make application to the Chief Surgeon of the Hospital, where they will receive notice of the conditions of admission, duties, salary, etc.

To subscribers of the REVIEW who are in need of missing numbers to complete volumes, we would say that Mr. J. C.

Milnes, V. S., of Cedar Rapids, Iowa, has the following duplicates: Vol. 3, No. 7; Vol. 4, Nos. 5, 8, 10, 12; Vol. 5, Nos. 1, 5, 6, 7, 8, 9, 11, 12. The gentleman will mail them to any inquiring party. Dr. N. H. Parren also has a number of duplicates, which he has promised to send us, and from which we will be pleased to provide any of our subscribers who may have imperfect files.

NEWS AND SUNDRIES.

PLEURO-PNEUMONIA.—Pleuro-pneumonia is reported at Seacaucus, Hudson County, N. J.

FOOT AND MOUTH DISEASE.—Some one of our exchanges states that after an interval of five months, during which no foot or mouth disease has appeared in the county of Norfolk, England, the contagion has again broken out in a dangerous form, and farmers are very much alarmed.

A NEW VEGETABLE STYPTIC.—During the French expedition to Mexico, a plant was discovered, called by the natives by a name which may be rendered as "Fowlwort" (*trandescantia erecta*). This has the property, when given internally, or even chewed, of stopping hemorrhages. Specimens have been cultivated, says the *Lancet*, at Versailles, and retain their native properties. It is asserted to be the most powerful styptic known.—*Medical Gazette*.

DEATH OF M. DAVAINÉ.—The death of M. Davainé, well-known from his discovery of the bacillus of "Charbon," is announced. Many of his most important works won for him prizes from the Académie des Sciences; among the most important are his *Traité des Maladies vermineuses chez l'Homme et les Animaux*; a *Memoire sur la Contagion du Charbon chez les Animaux*; and *Travaux sur la Septicémie*.—*Medical and Surgical Reporter*.

CATTLE QUARANTINE.—The New York quarantine for imported cattle has been located at Garfield, a station on the Erie "Short Cut," near Passaic, N. J. It is on a farm owned by Mr. Spencer, of the Erie road, has its own private side track and is already supplied with sufficient buildings to accommodate a considerable

number of cattle. The plans and specifications for the government quarantine buildings at this point, and at Baltimore, Boston and Portland have been approved by the Treasury Department, and contracts for their erection will be let out as soon as a reasonable time has elapsed for the reception of bids. The Treasury Cattle Commission had a session in Washington last Saturday, the full Board being present, to decide upon the details of the work. Nothing will be done toward a quarantine station at Philadelphia this winter.—*Breeder's Gazette*.

THE MICROBES OF DISEASE.—Dr. E. Salmon, while speaking for a few moments at a recent meeting of the N. Y. Microscopical Society, incidentally made some allusions to some observations tending to cast doubt upon the supposed bacillii of tuberculosis. In his own experiments he found a diplococcus form in a rabbit affected with tubercular disease, which seemed to be the same as a diplococcus which had been previously described as the cause of tuberculosis. Koch had described a totally different form—a true bacillus. Later observers have failed to discover either form.—*Microscop. Journal*.

MEDICATED MOSS-PEAT POWDER.—Dr. Neuberg has recently introduced in the clinic of Professor Esmarch, of Kiel, a method of wound-dressing to which he was led in the following way: Two years ago a laborer one day appeared who had sustained a compound fracture of both bones of the forearm eight or ten days previously, with considerable laceration. He had got a comrade to surround the whole forearm at once with a thick paste of peat mould, on which was laid a rough splint of wood. When he came to the clinic he was in good general health, and on cleaning off the mould the wound was found to be healing beautifully, without any sign of suppuration. A Listerian dressing was applied, and the limb better fixed, and the man made a good recovery. Dr. Neuberg was led to investigate the properties of peat mould with reference to wound-dressing, and he found that the dust resulting from the manufacture of blocks of peat with a circular saw (as carried on in Schleswig-Holstein), and which is very light in weight and in color, has a powerful affinity for ammonia, carbonate of ammonia, and bad-smelling materials

generally, and takes up nine times its own weight of water. For dressing wounds, Dr. Neuberg now uses two bags of gauze (one double the other in size) wrung out in carbolic solution and filled with mould, the mould in the smaller bag containing two and a half per cent. of iodoform, that in the larger saturated with five per cent. carbolic solution. The smaller bag is placed on the wound directly after disinfection of the latter with carbolic solution, zinc chloride, or iodoform, and the larger bag is placed above, the whole being kept in place by a gauze bandage. The dressing remains on mostly a fortnight or more. Excellent results have been thus obtained. The advantages claimed for the method are these: 1. A given quantity of the mould takes up more fluid than jute, gauze, or cotton wool. If it be slightly moistened its absorbent power is increased. 2. It has great power of absorbing products of decomposition of organic substances, and hence prevents its occurrence. 3. The moistened mould is a very soft, but still elastic substance, and so is easily placed in the required position in the bags before applying them to the inequalities of the body. 4. It is the cheapest of known antiseptic dressings, one pennyworth being sufficient for one dressing, and still less if the preparation with an antiseptic be left out. 5. It makes a very suitable pad for all purposes when enclosed in gauze.—*Veterinary Journal*.

EXCHANGES, ETC., RECEIVED.

HOME.—American Cultivator, Minnesota Farmer, Farmers' Review, College and Clinical Record, Rural New Yorker, American Agriculturist, Breeders' Gazette, Country Gentlemen, National Live Stock Journal, Medical Record, Turf, Field and Farm, &c.

FOREIGN.—Veterinairian, Veterinary Journal, Clinica Veterinaria, Quarterly Journal of Veterinary Science in India, Australasian Journal, Annales de Bruxelles, Archives Veterinaires, Recueil de Medecine Veterinaire, Journal de Zoötechnie, Revue d'Hygiene, Revue fur Thierheilkunde und Thierzucht.

JOURNALS—City & County, Farmers' Magazine, Medical Herald, Ohio Farmer, Practical Farmer.

PAMPHLETS—Über Zuchttahme, Von Dr. Ludwig v. Thanhoffer, First Annual Announcement of the School of Veterinary Medicine of Harvard University.

COMMUNICATIONS—A. A. Holcombe, W. T. Deer, J. S. Cattanach, J. P. Klensch, J. Kemp, jr., H. J. Foote, J. S. Denslow, T. Saunders, N. H. Paaren.

sheath between the navicular bone and the perforans tendon, sliding upon it. At first may be observed a certain injection of the synovia, and a darker hue in the coloration of the trochlear cartilage with the corresponding face of the tendon, the synovia becoming reddish and thick, the surrounding cellular tissue becoming, also, inflamed and infiltrated. At a later period, when the disease has somewhat progressed, there is a thickening of the walls of the capsule, which is then filled with a clear citrine serosity. There is then, a kind of hygroma, a chronic dropsical condition of the sheath. In the interior of this are found fibrous bands, running from the tendon to the bone. If the disease is older, erosions are found upon the diarthrodial surface of the navicular, varying in number and in size, and the tendon is roughened on its anterior face, with longitudinal fissures. At times, it becomes atrophied and thin, dry and brittle; and has been found, it is said, ruptured transversely. In many cases, the cartilage covering the bone has disappeared and the bone is exposed, hollowed and affected with osteoporosis. The union of the bone with the tendon has also been found among the varieties of determination.

IV.—*Diagnosis*.—This disease is at first easily mistaken for some form of rheumatic affection. Where pain is the main symptom it is easily detected, but where there are no other signs of inflammation, it is just the lack of proportion between the intensity of the lameness and the serious symptoms, such as the absence of heat; of special sensibility; of pulsations in the digits, which distinguishes navicular disease from other affections of the feet. The error with contracted heels is easier, as here the change of form of the foot being primitive, at once attracts the attention of the practitioner; while this alteration in the foot is absent in navicularthrititis at the outset of the disease.

V.—*Prognosis*.—Generally, it is unfavorable, as most commonly the veterinarian is called only when the disease has already made serious progress and passed into the chronic stage; and again, because of the difficulty of reaching the disease by reason of its peculiar location.

(*To be continued.*)

CEREBRO-SPINAL MENINGITIS IN THE HORSE.

(Paper read by H. James, Veterinary Student, Ontario Veterinary College, Toronto, at weekly meeting of Veterinary Medical Society.)

Mr. President and Fellow-Students :

Probably at the present time there is no disease regarded with wider-spread interest by the profession and horse men generally of the United States and Canada, than the one known as cerebro-spinal meningitis. Its very obscurity and ill-understood nature, together with the paucity of literature bearing upon the subject, have further tended to deepen that interest. Feeling that my own experience of the disease was too slight to be of much value, and not having much faith in mere theoretical expositions of its nature, I corresponded during the past summer with several leading American practitioners, who have had long practical experience of this malady; and to their replies, given with the greatest kindness and courtesy, I am largely indebted for the compilation of my paper. With this preliminary, I will now proceed.

Cerebro-spinal meningitis may be defined as a malignant fever of the epizootic class, resulting from a specific poison, which produces exact results, modified in degree in different cases, and characterized by profound disturbance of the central nervous system. Though this fatal disease has been noted in the human race since the beginning of the fourteenth century, it is only during the last thirty years that its occurrence in the equine family has been brought prominently before the public. Of late years, since the attention of the profession has been called to its existence in the horse, it has been recognized in places far distant from the Eastern States of the American Union, to which locality the disease was formerly thought to be peculiar. Two years ago the English veterinarians first made its acquaintance, though it is said to have been prevalent in Ireland at various times previously, and according to some it has been seen in far-off India. Returning to this continent we find that Professor Smith has met with the disease on Canadian soil, and Dr. Holcombe, I.V.S.U.S.A.,

believes that it probably prevailed as an enzootic in the Indian Territory a few years since. Thus at present we cannot accurately lay down its geographical limits; probably it occurs in the sporadic form in nearly all countries; it is only in the United States as yet, that the disease has taken on an epizootic character. The tropical regions proper have hitherto escaped its ravages in the human subject, and are believed to be exempt; perhaps the same may hold good of the horse.

Etiology.—Its etiology is enshrouded in mystery; age and extreme conditions of life, which have so powerful an influence in the human subject, exert no appreciable effect in the horse; it is met with alike on high plateaus and marshy lands; in some outbreaks mares seem to be more susceptible than geldings, but just as likely as not in the next run of cases, this state of affairs is reversed. Atmospheric influences have been called in to account for its development in the epizootic form, and may possibly be concerned in the distribution of the virus. Though isolated cases may be met with at any season of the year, it is essentially a disease of the cold months. It has been pointed that the most severe outbreaks take place in early spring, when the sun is warm enough to thaw the ground during the day, and so release the poisonous germs, but the weather still too cold to allow of the stable doors and windows being left open for ventilation; this state of affairs causes a great accumulation of poisonous matter in the stables, which produces its results in due time. In the Canadian outbreak, Profssor Smith traced the cause to impure water; on remedying this, no more animals died, but next year, after watering at the same place, the disease again appeared. This appears to be conclusive evidence that it may be produced as a dietetic disease, and most probably a great many sporadic or localized outbreaks might be found to have a similar origin. In the November number of the *American Veterinary Review*, is an article by Dr. Michener, of what is, in his locality, called “choking distemper,” and also by some, convulsive ergotism. In this particular instance, over forty horses were fed on some brewers’ grains, and every one died from the disease; on being fed to cows, these grains did not produce any deleterious effects; he also mentions

the case of a farmer, who lost five horses from feeding on musty oats, some of which oats being fed to horses in Philadelphia, killed them in like manner. Dr. Michener believes it to be due to fungus spores floating in the air, or adhering to the feed, and proposes to call it, "*Fungosus Toxicum Paralyticus*." By some it has been included among the *netroses*, or functional disorders of the nervous system, without typical post-mortem appearance, or anatomical characteristics. Without doubt the debilitating effects of bad ventilation, overwork (especially night work) and sickness afford a good opportunity for its development; but in the epizootic form we must admit the existence of a specific blood poison, having a special affinity for the nervous centres. Frequently we meet with the disease in horses enjoying the best sanitary conditions, and even attacking them in preference to weaker animals; such has been the experience of many practitioners. It was formerly regarded as of malarious origin, but the inefficacy of quinine disproved that idea. Some years ago Professor Large advanced a theory which to a large extent has influenced the therapeutics of cerebro-spinal meningitis ever since. He regarded it as a specific blood poison, affecting the ganglionic or sympathetic system of nerves, the toxic effect of the blood producing a condition of vaso-motor paresis, and the train of symptoms being due to the loss of the governing power of the circulation—in a few words, a paralysis of the sympathetic. Its infectious character seems to have been indicated in a few instances in the human race; but in the horse it is usually regarded as non-transmissible, and dependent on some cause acting generally.

Symptoms.—The symptoms vary with reference to the accumulation and multiplication of the virus in the system, and the portion of the cerebro-spinal axis immediately affected. At the commencement of some epizootics, the fulminant form often prevails; the animal with such slight premonitory symptoms as to be overlooked, wabbles in his gait, goes down, furious delirium alternates with coma, the breathing is stertorous, and he soon dies from rapidly progressive paralysis. In a few cases, and those mostly of the above-mentioned type, the animal, after slight twitchings of the muscles, is suddenly seized with opisthotonos,

or emprosthotonos, a slight degree of trismus being occasionally present, or the lips twisted to one side; in a few instances general rigidity of the muscles of the hind-quarters has been observed. These phenomena arise from the exalted condition and perverted distribution of nervous energy; but this state soon passes over and perfect enervation prevails. The undoubted occurrence of tetanic spasm in the horse in this disease is interesting, as some medical authorities have thought that the opisthotonic attitude so frequently assumed by children, when suffering from epidemic meningitis, was purely voluntary, and the one which gives most relief from pain. But we must not imagine that cerebro-spinal meningitis is characterized by tetanic spasm, for this only occurs at the outset, and even then is met with in a minority of cases; usually, the observer is struck by the utter prostration and depressing effects of the poison on the animal economy; the muscular system is entirely flaccid, and there is a laxity of every function. In the majority of cases, however, there are certain early premonitory symptoms of the oncoming disease. The horse appears dull and indifferent to surrounding objects; he droops his head, and shows symptoms of more or less severe headache; the appetite is poor; if in a team he lags behind, the gait becomes staggering, and the hind legs plait, as it is termed. Some local paralysis may now be noticed, such as lopping of the ears, or loss of prehensile power in the lips, accompanied by slavering. Difficulty in deglutition is present in every case, and is often the first symptom noticed. Mastication is very slow, and in drinking, the nose is dipped nearly to the eyes in the water, and although he appears to drink readily, yet little is taken. Often this difficulty in deglutition leads to the practitioner being called to see a case of sore-throat, as it is thought to be by the attendant; this important symptom arises from the animal being unable to "trough" his tongue, through partial or entire paralysis of the muscles controlling that organ. Frequently, the first symptom shown is a loss of muscular power in the tail; you can readily turn it up over the croup *without resistance*, it is very imperfectly used to brush off flies, scarcely reaching the flanks, and often not used at all where sensation is much impaired. Some cases are ushered in by an at-

tack of colic, apparently neuralgic in character; such cases require very careful watching in an epizootic. *Congestion of the retina as seen with the ophthalmoscope is one of the earliest, if not the FIRST evidence of the disease.* In from a few hours to four or five days the animal becomes comatose; but at any time during the ordinary course of the disease he may be easily aroused, though sometimes becoming very much excited when disturbed. The somnolence or apathy may persist throughout in some cases, but is more frequently alternated with delirium, which is sometimes so violent as to render it dangerous to approach the animal; such cases generally die in a mad state. The pulse is not much altered, but usually weak and soft; in fact, the capillary circulation is *sometimes* so slight as to lead to extensive sloughing of those parts that come in contact with the ground or slings; in acute cases the pulse is often extremely fast and irregular, but in the experience of most practitioners never "wiry," as stated by Lyman in "Williams' Practice." The temperature in typical cases is about or below the normal, but in protracted cases a few hours before death, and in fulminant cases living only a few hours, we may find it run up to 105° ; bed sores may cause a rise of 1° , but excepting in the above condition a high figure usually points to lung complications. The bowels share in the prevailing torpor, and are usually inactive; retention of urine readily occurs from paralysis of the bladder, hæmaturia may be present early and late in the disease, nearly pure venous blood being passed in some cases. Sexual excitement is nearly always present in mares or stallions; priapism has been noticed in the gelding. They frequently struggle violently in the slings, and sometimes your patient will astonish you by turning a complete summersault. Rudimentary forms, in which difficulty in deglutition and lumbar weakness are the most constant symptoms, occur on the outskirts of epizootics. Fatality is in ratio with the sudden or gradual development of the symptoms; in cases which recover, the acute symptoms are over by the eighth or tenth day as a rule; death usually results from coma. Young and vigorous animals recover quickest, relapses are common, and the practitioner should always be very careful in making a prognosis in horses past their prime. As the animal improves

he becomes brighter, delirium ceases, and the intervals of coma are lessened; in nearly all cases he gains flesh while in the slings. Dr. Rogers, of Gloucester County, New Jersey, informs me that two of his cases, apparently progressing favorably towards recovery, died of true apoplexy; in each instance the clot being thrown out at the base of the brain, and in one case, a horse aged nineteen, producing in a beautiful manner the respiration similar to that seen after section of the pneumogastric. The paraplegia, which persists in many cases after the animal is otherwise restored to health, is the bugbear of American practitioners; it often lasts for months, resisting every method of treatment.

Diagnosis.—This is sometimes beset with difficulties, as shown by the fact that cerebro-spinal meningitis, azoturia, and paraplegia were regarded as one and the same disease; but the diagnostic points have been pretty well settled by close and scientific observation. Occasionally it may be confounded with the nervous form of influenza; the occurrence of convulsive fits, coma and lumbar weakness may be associated with real sore throat, cough, discharge from the eyes and nostrils, high pulse and temperature; such cases may most probably be referred to the specific blood-poison of influenza, acting more especially on the nervous system. Azoturia is frequently mistaken for it, but there is an absence of the hard and *board-like* condition of the gluteal and femoral muscles seen in the former disease. There is not the pain, the high febrile condition and excessive sweating over the hind quarters, as seen in azoturia. You may have bloody urine early and late in cerebro-spinal meningitis; the urine may be dark or loaded with urea or its analogues; but you will not find the coffee or chocolate-colored, thick, grumous discharge, loaded with albumen and often with casts, that you find in azoturia. The previous history of the case, the idleness and high feed, the fact that the animal frequently goes lame on one hind leg before showing the more acute paraplegic symptoms, together with the absence of that early onset of coma and difficulty in deglutition seen in cerebro-spinal meningitis—all these will help the careful practitioner to form a correct diagnosis. In paraplegia, again, we have high febrile condition and pain, very different

from cerebro-spinal meningitis; the animal as a rule thrashes about more; the hind-quarters remain immovable and the horse nearly always gallops with his fore feet, a peculiar symptom never observed in cerebro-spinal meningitis. We should have no difficulty in distinguishing it from spinal meningitis, which occurs from well-marked causes at any season of the year. In simple spinal meningitis we have a full, hard pulse, high temperature, perfect deglutition and absence of retinal congestion. Sun-stroke occurs at a different time of year to that in which cerebro-spinal meningitis chiefly prevails, and the high temperature, peculiar dryness of the skin, occurrence on a hot day, and general history of the case, are sufficient to prevent our falling into error. No absolute distinction can be drawn between epizootic cerebro-spinal meningitis and the sporadic malady of the same name.

Post-Mortem Appearances.—Though many pathological states of the brain and spinal cord have been described by various authorities, there is still a remarkable difference of opinion among the profession on the subject. Whether this arises from most post-mortems having been made on fulminant cases, in which death occurred too quickly for local lesions to be developed, is hard to say; the same thing obtains in the human subject and has led to its being classified by some among the *nervous* or functional diseases of the nervous system. Dr. Holcombe has never found any post-mortem appearances that were constant and could explain the pathology. Dr. Verrill of Boston, has made many post-mortems, but never saw any lesion in the spinal cord or any of its membranes, beyond finding a little fluid which he was satisfied was not the result of any diseased condition previous to death. Dr. Rogers says that you will usually find the membranes of the brain and upper part of the spinal cord more vascular than normal, with increase of serum in the sub arachnoidean space and in the ventricles, and in some cases an abundant exudation of thick, yellowish lymph at the base of the brain, together with oedema of the brain and cord; and this loosening and separating of the nerve elements possibly accounts for the motor and sensory disturbances seen during the course of this disease. In those few cases which die of apoplexy the clot will usually be found

at the base of the brain. Its occurrence is interesting as showing the passively dilated condition of the small blood-vessels. In England Professor Axe found ten or twelve ounces arachnoidean fluid, pia mater, brick-colored and engorged, membranes of both brain and cord intensely congested and marked with blood clots; brain showing a similar condition with some staining of serosity, with which it was infiltrated, and no softening; mucous membrane of large intestines and villous portion of the stomach congested: so marked were the latter lesions that an analysis was made for vegetable or mineral poisons, but with negative results. Somewhat similar appearances were observed by Professor Smith in the Canadian outbreak. Others have noticed separation of the dura mater from the vertebræ of the spinal cord by extravasated blood, embedding of the nerves as they emerge in sero-purulent exudation, pus in the central canal of the cord, and purulent infiltration of the pia mater in the lumbar region. The ecchymoses of the intestines are probably analogous to the purpuric spots seen so often on the skin of human patients suffering from this disease, and which in them gave to it the name of "spotted fever" in many places. Their occurrence gives strong support to the view that we have to do with a blood poison, of whose nature, however, absolutely nothing is known.

Treatment.—Owing to our imperfect knowledge of the pathology of cerebro-spinal meningitis, there necessarily exists considerable controversy as to the proper therapeutic measures to be adopted. Most empirics, not appreciating the constitutional nature of the disease, direct all their treatment to the throat and loins. Chloral hydrate and bromide of potassium have been recommended by some as valuable medicinal agents, especially in cases where delirium runs high; while others assert that the bromides have no effect on the larger domesticated animals. The combination of ergot with strychnine, belladonna or chloride of iron, is highly praised by many; its use is especially indicated in those cases where hæmaturia is present. Dr. Very, of Boston, found that arsenic and atropine placed on the tongue yielded apparently good results, but in his opinion all treatment is guess-work. Acting on his theory that the disease was essentially a paralysis of

the sympathetic, Professor Large, of Brooklyn, gave belladonna throughout the active course of the disease, and also used it as a prophylactic; but the results of the preventive treatment by giving this drug, have been criticized with some reason by other veterinarians. Though used more or less by practitioners, many place no reliance upon it until the more acute symptoms have passed and then only do they begin its exhibition. A grave objection, urged against the use of belladonna by some, is its tendency to throw a horse off his feet, a thing we should especially avoid in cerebro-spinal meningitis. Largely owing to the experiments of Dr. Holcombe, the employment of strychnine in this malady was commenced, and the good results obtained have led to its general adoption. It has a powerful influence on the nutrition of the spinal cord, and is of great value in both preventing and curing the resultant palsy. Some give it, after the acute symptoms have passed, in one to three grain doses, others, again, begin in large doses, given by the mouth at intervals of one or two hours, even where opisthotonic or emprosthotonic symptoms are present, running up from two or three to six, eight, or nine grains of the drug at each dose. In acute cases, when the animal is down and unable to stand in slings, Dr. Rogers places all his reliance on hypodermic injections of morphia, but says you must push them until they produce *automatic movements simulating the act of trotting, and profuse diaphoresis*. He has never seen a case die where the drug could be pushed to this extent, but it will be necessary to give from forty to sixty grains in two or three hours in order to get the desired effect. If, after giving about fifteen grains, the horse sleeps quietly, though only for a few minutes, he finds it a favorable symptom; gives tincture of matico and strychnine during convalescence. The opium treatment of Dr. Rogers seems somewhat similar to that used by Dr. Stillé, of Philadelphia, with great success in the epidemic meningitis of children. Stimulants, such as aromatic spirits of ammonia, alcohol, nitrous or sulphuric ether, are extremely useful at times, and must frequently be pushed to a considerable extent. After the more pressing symptoms have been alleviated, carbonate of ammonia given in bolus, along with ginger and gentian, will be

found of service in keeping up the appetite. Most practitioners purge, under the idea that they have to deal with a blood-poison, and that it is their duty to eliminate it as quickly as possible from the system; but it is necessary to give half as much again as you would do under ordinary circumstances. For my own part, I think those practitioners are right who consider depletive measures inadvisable in such a weakening disease. Slinging should always be resorted to when the animal can stand; if not got upon his feet within twenty four hours, his chances are very poor indeed. A few pretend to treat cases when down, by turning from side to side, but such a course is very unsuccessful. As to the application of counter-irritants, this is another disputed point; though condemned by many as absurd, the most successful practitioners use mustard to the spine, and even to the throat, and claim that benefit is so derived. Where delirium runs high, ice to the head may be of service, or this not relieving him, a good mustard plaster to the poll may have the desired effect; in many of these cases hot and cold applications used alternately, are found to answer better than either used alone. In acute cases, where there is imminent danger of collapse, and in others where deglutition is impaired to such an extent that the animal can scarcely swallow at all, the plan proposed by Professor Smith is well worthy of a trial. A specially constructed tube, about twice as long as the ordinary catheter, but of similar diameter, is passed along the inferior meatus of one of the nostrils, and pushed on to the stomach; two catheters fixed smoothly and strongly together would answer in an emergency. Through this, stimulants or other medicinal agents may be poured, and even nourishment be administered. The action of the bowels should be solicited by injections; and it will usually be found necessary to pass the catheter night and morning for some days. If unable to swallow, the vital powers may be kept up by whisky, eggs, milk and gruel, given either by enema or preferably by the tube. When convalescent, if there is resultant paralysis, use a current of electricity strong enough to produce a sensation of pins and needles, applied to the parts three times a day and *decreased* on the slightest signs of improvement; try also the effects of nervine tonics, as

arseniate of potash, strychnine, and the preparations of zinc. Build up the system by means of vegetable and mineral tonics, and give iodide of potassium and gentle diuretics to promote absorption of any effusion which may have taken place. Laxative food, such as scalded oats and bran-mash, roots, apples and linseed, should be given throughout the disease, and will obviate the tendency to constipation. Give exercise as soon as possible, being very cautious at first that your patient does not fall and hurt himself; it is a good plan before taking him out of his stall, to alternately advance and back him for a few steps, and then, with the help of two assistants, to prop his hind-quarters in turning, you may move him off; if the weather is fine a good sun-bath daily will be of great benefit. Stimulating liniments, or cantharidine, biniodide of mercury, or tartar emetic blisters, may be applied to the loins for the resultant palsy; but many of these cases recover after unavailing treatment, when given a long rest and a run at pasture. Whenever possible, especially in the acute stage, give your remedies hypodermically, and while employing the powerful therapeutics mentioned, such simple but valuable measures as hand-rubbing, comfortable clothing and bandages to the limbs should not be forgotten; a good deal more in veterinary practice depends on nursing than is usually thought by the laity. When an outbreak occurs, a searching investigation should be made into the quality of the food and water, and even if nothing be detected, it will be well to completely change the diet; defective ventilation or drainage should be remedied, and, if many new cases occur despite all sanitary precautions, remove the animals away from the infected stables. Then thoroughly disinfect by means of sulphurous acid gas liberated in large quantities by placing sulphur on red-hot iron plates, apply carbolized whitewash to the walls, and on returning the animals put them on a course of hyposulphite of soda: these measures fully adopted will materially lessen both the number and severity of the cases. Doubtless, in the near future, the subject of the diseases of the nervous system of our domesticated animals will receive that attention from the profession which its importance entitles it to. Within a comparatively recent date, catalepsy and locomotor ataxia have

been observed in the horse, and as an inevitable result of domestication, we may expect that the list of these disorders will yet be greatly increased. Few veterinarians, up to the present time, seem to have had the inclination or opportunity to fully investigate the nature of cerebro-spinal meningitis; to the lack of sufficient data is due the meagreness of my paper, which I now draw to a close.

THE BERLIN CATTLE MARKET.

BY R. S. HUIDEKOPER, M.D., V.S.

“ Splenic fever, black leg and red water; these are all due to the primary cause of indigestion and malnutrition, sometimes from poor, dry and scanty food, and at other times from over-feeding in moist places where the herbage is young and succulent.”

These few lines, copied from the *New York Times*, were the first thing I saw on opening the *Pittsburgh Stockman*, just received from America, when I came in from a day passed in examining the cattle market and slaughter houses of Berlin (Germany).

The contrast was so great between the almost criminal carelessness of the authorities, who allow such a belief to be prevalent in a country, and the complete precautions (to American eyes almost excessive) which are here in force for guarding against the “ splenic fever ” and *other contagious* diseases (dangerous alike to animals and to man), that I believe an account of the Berlin “ vieh markt ” may be of value.

The cattle market and slaughter houses form a small town by themselves in the suburbs of Berlin, and are under the direct supervision of the government.

It is the centre not only for the supply of Berlin, but from here large quantities of animals and of dressed meat are sent to the other German cities and to Brussels and Paris.

The market days are held twice a week, and an average of over 4,000 cattle, 8,000 sheep and a greater number of hogs are handled at each sale.

The buildings are all of brick, laid in cement, and all the ground, including that of the open sheds and streets, is covered with cement in order to facilitate the most perfect cleanliness.

To the market is attached a corps of twenty-two (22) veterinary surgeons, whose duties are divided between the examination of the live animals and the inspection of the butchered meat.

All cattle coming to Berlin must be unloaded at the market, and all butchering must be done here.

As the cars with the animals are run up to be unloaded, an under veterinary surgeon must inspect each load, as it leaves the car, and before it has left the platform, which latter is not allowed if any sign of disease is detected.

The animals are then driven to the stabling allotted to the commission merchant, and there again undergo a more thorough inspection.

The unloading platform is cleaned and disinfected each night, and in case of a contagious disease being detected the animals are returned to the same car, to be run to the special building for them.

If the disease is not discovered until the second inspection, the animals are not driven, but hauled in special wagons to the separate building, so that no additional contact can take place between them and the other lots.

The empty cars, without exception, (even when they have only served for the transport of a single horse) are now run into a yard for washing.

The railroad track is here laid on a cement ground, with convenient gutters. It runs each side of a large building, which contains boilers for heating water. Each car is first swept out and washed with a stream of hot water from a hose. It is then run to another track where it is mopped from top to bottom with water at a temperature of 70° Celcius (158° F.) which contains soda at the rate of 75 grammes (over 2 ounces) to each bucket full of water.

When the disinfection is completed, the foreman pastes a blank on the car door, and when the veterinary inspector shall have examined the work and signed the blank, the car is again ready for use.

The shipper or commission merchant pays a tax of two marks (fifty cents) for each cattle or sheep car, and three marks (seventy-five cents) for each double floored pig car.

The animals recognized, attainted or suspected of a contagious disease, are run into a special building, where they are kept until condemned, in which case the owner is indemnified by the government, or till they are sent to a special slaughter house, where, under the supervision of the inspector, the feet, skins, etc., are disinfected or destroyed, and the meat is examined before its sale is authorized.

After visiting the stables for the contagious diseases we were met at the gate by a man who washed our boots with a disinfectant, and brushed our clothes, before we were allowed to visit the other buildings.

When butchered, the meat is all inspected by the veterinary surgeons before its removal from the slaughter house or its sale is allowed.

The slaughter houses are divided into rooms of all sizes to suit the demands of the renters (butchers). The floors are of tiles, laid in cement, the walls in slate, and there is every possible convenience in water and ventilation. A railroad track runs into the larger rooms for the benefit of the wholesale butchers who ship to Paris and other places by rail.

The buildings for the pig butchery are arranged in the same manner but each room contains a tank, to which steam pipes are attached for heating the water. In addition there is one building where the owners of a single pig can have, in common with others, all the facilities which are afforded to the regular butchers.

In the pens the hogs have all undergone a preliminary examination for *Cysticerci*—a disease fortunately rare in the United States.

In each slaughter house for the pigs are attendants with microscopes who examine determined parts of each animal butchered.

The butchers pay for this a tax of one mark (25 cents).

One-half of this goes to pay for the examination and the other half to a fund from which the unfortunate owners are indemnified when *trichinæ* are discovered in their pigs.

In the slaughter house for the animals with contagious diseases, is a superior veterinary surgeon to whom all suspected meats are referred.

With the uniting of the German States under one general government it was made possible to enforce stringent laws for the protection of the whole country.

The result has been an ample reward for the expense entailed.

The contagious diseases of the domestic animals have yearly decreased. The liberal indemnity paid by the government for condemned animals facilitates the application of the sanitary laws and the people are more than content in seeing the government spend on the veterinary officers in each department and city but an iota of the money which they would otherwise (and formerly did) lose in their animals.

In America, where the *people are* the government, will they not take an equal interest in the protection of their own property and demand a sufficient and proper inspection of the food which they eat?

A few years ago such a demand was not possible, as our number of men, educated to properly judge diseased animals, was small and derived only from Europe.

To-day however, an increasing number of intelligent men are receiving the proper education in the city of New York, and are waiting for *you*, Readers, Agriculturalists, owners of valuable animals, and guardians of your families' health, to come forward and demand of the government help and aid for the advancement of this education, and public positions which will secure *you* the benefit of it.

METASTATIC ABSCESS IN THE LIVER OF A HORSE.

BY J. C. MEYER, JR.

In this case the patient is a bay draught mare, aged seven years who came from the country on the 3d of July 1882, apparently healthy, and in high condition, and was kept at work until the evening of the 14th of July, when she was attacked with flat-

ulent colic. She was considerably tympanitic, and restless, the greater part of the night. On the following morning she appeared quite comfortable and ate her breakfast. Contrary to my instructions, she was put to work on the same day, which developed an acute case of laminitis. This sequel proved somewhat obstinate to treatment, but, by the 5th of August she recovered sufficiently to travel to pasture, a distance of ten miles, without suffering any injury, where she soon became quite convalescent. September 1st, I was requested to prescribe for her for the relief of a laryngeal trouble which she had recently contracted. This malady, as I was afterwards informed, was associated with numerous sub-maxillary abscesses, and subsequently a large abscess in the guttural pouches, characterized by the presence of a tumor in the right parotid region. For the treatment of this latter complication, my services were solicited on the 27th of September, when I visited her. After exploring the tumor, and being convinced that the pus could be reached with perfect safety, I carefully made an incision at the most prominent point of the tumor, which was about the middle of the parotid gland. This furnished an outlet to a large quantity of white, thick, inodorous pus. On introducing my index finger into the cavity, I found that it extended downwards towards the inferior surface of the larynx, where I made a counter opening in order to establish free drainage. The after treatment consisted in cleansing out the cavity by injections of carbolated water, with very good results, the wound healing quite rapidly. The mare's general condition soon began to improve; regaining appetite, strength and weight; in fact, she had the appearance of making an entire recovery at an early date. This improvement was however, but of short duration. About the latter part of November, I was informed by her attendant that she was again failing fast. He pronounced her a heart-broken, living skeleton. When turned out she would stand isolated, at a fence, without leaving the place all day, not paying any attention to other horses nor to food, and when in the stable would lie down most of the time. She was put on a tonic treatment until the 6th of December when, by request, I visited the patient. I found her standing in a wide stall, well representing

the conditions of asthenia, apathy, and marasmus. She abstained from food almost absolutely. She would lie down on either side and groan, and at times, it cost her strenuous efforts to rise. Her pulse numbered 72 per minute, and weak. Her respiration was exceedingly quiet, while standing. Her temperature, 103. All visible mucous membranes looked pale and anæmic. Her extremities were cold, and not swollen. The small quantity of fœces she passed was of a mushy consistency. Her urine was scanty, and of a light specific gravity. These progressive grave symptoms induced me to make a fatal prognosis, whatever organic disease might prevail, and I ordered her destroyed. Her owner, however objected, as long as she was not entirely prostrate. This state was soon at hand.

On the morning of the 15th of December, I received a telephonic message from the farm that she was down and unable to rise. Being anxious to make a post mortem examination, I notified her owner (who lives in the city), as to her condition, and obtained his consent to destroy her. Arriving at the farm, I found her lying on her left side, struggling and groaning considerably, in an utterly helpless condition. I destroyed her at once, and proceeded with a post mortem examination, which revealed the following pathological lesions: Division of the abdominal walls along the linea alba, from behind forwards, gave vent to a copious flow of pus from the epigastric region. This pus was almost subcutaneous, and resembled that of the former abscess in the parotid region in every respect—thick, white, inodorous matter. Further examination disclosed the existence of firm adhesions of a portion of the small intestines and the diaphragmatic curvature of the colon to the walls of an abscess that connected the liver with the abdominal parietes. This abscess extended clear into the right lobe of the liver, a distance of 4 to 6 inches. It was divided into two separate apartments by a partition leading from the abdominal walls. The cavity within the hepatic tissue was arranged in a series of irregular, open receptacles, filled with pus. The inferior half of the right lobe of the liver was elongated and considerably firmer than natural. Through it traversed numerous small canals filled with pus. The remaining

AMERICAN VETERINARY REVIEW,

FEBRUARY, 1883.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

BY A. ZUNDEL.

(Continued from page 432.)

NAVICULAR DISEASE.

SYNONYMS.—*Chronische Hufgenklahme*, German; *Maladie Naviculaire*, French. This disease, called by Loisel and H. Bouley, *podosesamoideal synovitis* (synovite podosesamoidienne); by Brauell, *chronic podotrochlit*is, is an inflammation of the sesamoid sheath of the horse, that Turner and some other English veterinarians were the first to describe, and which is mostly observed in thoroughbreds.

The disease is principally seen in the fore feet, and more commonly in one foot alone; sometimes, however, both legs are affected, one first, and the other following. Navicular disease of the hind feet is seldom observed.

It is accompanied with lameness and deformity of the foot, and often proves rebellious to treatment. It is followed by contraction of the heels, (*encastelure*) which is itself often mistaken for navicular disease. At any rate, the affections are nearly related, whether the disease of the sesamoid sheath, first occurring,

is followed by the contraction, or that the hoof, originally contracted, gives rise to the subsequent alterations of structure which constitute navicularthrititis. At present we shall only consider the deep inflammation of the podosamosoideal articulation, occurring without primitive alteration in the form of the foot.

I.—*Symptoms*.—These are at first obscure. The lesion is deeply situated, and is, so to speak, concealed in the hoof, which itself, is generally at first of very limited extent. The first symptom which attracts attention is the lameness, which sometimes, indeed, seems to be merely a certain weakness of the affected leg. This lameness is at first intermittent and slight, but gradually increases. When in the stable, the animal “points,” that is, the diseased foot is carried forward of a vertical line, and assumes a state of general relaxation of the muscles, with the coronet straightened and the foot mostly resting on the toe. This incomplete rest of the leg, which is sometimes kept in motion forward and backwards, becomes especially apparent if the animal is moved backward in his stall. He then sets down his foot with much hesitation, and for a short time; the same thing also occurs when, in order to relieve the opposite leg, the animal puts all his weight on the diseased one. Still, a close examination of the foot fails to reveal any marked lesion; no change of form appearing, no pain at the coronary band; merely a little heat toward the heels, or on the frog, where there can also be found a certain amount of low and deep sensibility, made apparent only by percussion of the hammer upon the foot, or by the pressure with the blacksmith’s nippers, principally toward the heels and the frog. According to Lafosse, the frog is often found indurated, atrophied and thrushy. If exercised, the horse frequently stumbles, and sometimes falls on his knees; he fears the pain of resting the heels on the ground, and is limited in the movements of his knee and fetlock. If the heels are pared off, in such a manner that the frog is well prominent, and the horse becomes much heated, the lameness is increased, although at first it may have been very slight. Blacksmiths may frequently obtain the same result by placing under the foot a bar shoe, which, then resting on the frog, and not the heels, greatly aggravates the lameness until it becomes

excessive. This mode of diagnosis was originally indicated by Brauell: When, after more or less exercise, the animal is allowed to cool off, he at once points, straightens his fetlock, and slightly flexes the knee; the leg has a trembling motion, and no rest is taken upon the heels.

There are, however, according to Hertwig, cases where navicular disease suddenly reaches a period where, in the stable, the animal avoids all resting on the heel; points constantly, and hesitates to put his foot on the ground when made to walk. It always seems that there must be some traumatic lesion in the foot, as a punctured wound or a suppurating corn; and still there is no increased heat in the hoof, and no extraordinary pulsation of the arteries of the foot.

The disease has a tendency to increase, and the animal soon becomes very lame upon being put to work, especially on a hard road or rough ground. The heat of the foot is increased principally after work, though not in proportion to the lameness.. The sensibility of the foot is also more manifest under the exploring pressure of the nippers. In the stable the pointing is well marked and the trembling of the leg gives signs of deep and persistent pain. It is only after several months of this suffering that the foot begins gradually to show a change of shape. It then becomes visibly narrowed and elongated, in a manner which can readily be detected both by sight and measurement. There is a general atrophy of the hoof; the periople has disappeared, or scales off; the foot becomes covered with ridges, more or less marked, but better developed towards the heels; the frog has become sunken and atrophied; the sole is ecchymosed, presenting evidences of corns; and the leg is atrophied, especially about the muscles of the shoulder.

In cases where both fore-feet are affected, the animal points with either foot alternately, while seeking the desired relief for each, but the rest on either is very short. The hind legs are brought under the centre of gravity, the back is arched, and the decubitus prolonged. In stepping out of the stable, both fore feet are held stiffly, and kept close to the ground; the animal

stumbles on his fetlocks, and often falls, and one might suspect him of being weak. In walking, his shoulders seem to be rigidly attached to his body, but as he warms up the legs move more freely and his actions become less limited; but immediately on cooling off, and especially the day following one of hard work, all the symptoms reappear, with even aggravated intensity. The disease increases steadily with the lapse of time. When one, or what is more rarely the case, both hind feet are affected (Loiset has seen it occur), the animal is stiff behind; he is lame on one or both feet; he puts his foot on the toe only; knuckles at the fetlock; and presently an atrophy of the muscles of the superior regions takes place.

II.—*Progress, Duration, Termination.*—The disease generally maintains a steady progress; nevertheless it very often undergoes a remission, due to the hygienic conditions in which the animal is placed; to the seasons; to the state of the atmosphere, and to other causes. It may diminish in severity, and its symptoms disappear, while in its first period, if the animals are left at rest—without shoes if possible—loose in a box, with damp bedding, or in a marshy field; or in winter, during the rainy season, while the atmosphere continues in a moist condition for a long period. It is, under these circumstances, not uncommon to see feet which had become contracted quite recover their natural dimensions. Aside from these exceptional cases of recovery, the lesion keeps on slowly destroying the tissues where it exists; the lameness remains constant, or becomes intermittent for years, sometimes after the animals have become entirely unfit for work. There are frequent complications involving the surrounding parts; sometimes a true arthritis, and besides the complete atrophy of the muscles of the shoulder, the carpal ligament becomes thickened, the tendon of the perforans undergoes the same alteration, and ring-bones and side-bones may follow. Again, however, the animal may become knuckled to such a degree that he can scarcely rest his foot on the ground at all.

III.—*Pathological Anatomy.*—As we have said, the disease has its seat in the synovial capsule, formed by the small sesamoid

portion of this lobe, as well as the rest of the liver, had a healthy appearance. No biliary concretions were detected within this organ.

It is actually marvelous on the part of nature, when we realize how she endeavored to arrange an exit for the pus that was lodged within the liver, by forming an adventitious sac connecting the diseased portion of the liver with the abdominal walls, as well as to the intestines already mentioned. It is my opinion, from the relations the abscess bore to the skin on the one hand, and the intestinal walls on the other, that a spontaneous cure would have been effected by establishing an outlet for the pus, either externally or into the bowels, if the animal had not been so completely debilitated, which shortened her existence. If the location of the abscess had been indicated by a swelling externally, I should have been enabled to assist nature in accomplishing her efforts by the aid of a scalpel, and thus releasing the pus; but, as it was, no swelling of any kind was discernible anywhere, not even an œdema of the abdominal walls or extremities. Other symptoms, such as rigors, icterus, and lameness of the right shoulder, which we would expect to find, were absent, to my knowledge. As to the etiology of this rare case it is justifiable to presume that it had been occasioned by the absorption of material from the disintegrated cellular elements of the diseased glandular tissue that prevailed in abundance during this animal's severe throat affliction.

EXTRACTS FROM A DAILY JOURNAL.

HORSES TREATED BY THE ENGLISH MEDICINE.

BY J. P. KLENCH, V.S.

(Continued from page 441.)

CLASS I.

No. 108—Stallion, eight years old, entered hospital April 8th, 1863. This horse was working at a station where he had to cross a creek about one hundred times every day for at least two months. Lately his appetite was failing; had a thick, bad gland

on left side; the nasal discharge was white, serous, of good nature, and rather abundant; but the Schneiderian membrane, of a metallic color, showed a great number of small red spots. The driver reported that the horse had been bleeding lately from the nostrils. I had the horse sent to the Central Hospital on the 8th, and gave him one arsenical powder a day from April 9th to 17th. Then, on examination, the nasal discharge was found more abundant, thick, greenish and sticky; greater on the left than on the right side. In the left nostril there are marks of three ulcers, very close to one another, in the septum medium, and two more under the nasal wing (*repli de l'aile du nez*); gland also large. The horse is glandered, and received the English Medicine on April 18th. I examined him again on April 27th, and found the nasal discharge very light; the gland about the same; the ulcers seem to remain stationary; the mucous membrane, not yet fallen off, is white, dead, and seems to be well adhering. May 1st, the gland is smaller; no more nasal discharge; the two ulcers, under the nasal wing, are well marked; the three others have united into one. Horse looks bright and eats well.

May 8th—All symptoms improved; very little is left of the gland; nothing more is to be seen of the chancres in the nose. Horse is sent to work outside. But returns on October 24th, with the above symptoms of suspicion. Issue very favorable again on November 2nd; no more nasal discharge; horse sent to work—and returns on January 25, 1864, with a third relapse, having a bad gland and a nasal discharge: horse suspicious. English Medicine, and afterwards tonic—arsenical powders. Issue uncertain on March 1. Remark—no discharge—gland still existing and horse works outside. I have not seen him since.

No. 91.—Horse, five years. Entered March 8, 1864. Bad nasal discharge, small gland, and one tubercle under nasal wing. Suspicious. English Medicine. Issue favorable. March 21st—Works, and returns April 27th for suspicion of glanders. Received the English Medicine and was in hospital yet when I left the company at the end of May.

No. 151—Stallion, seven years, entered March 26, 1863. Bad, double nasal discharge, heavy, brownish and very sticky; a

very bad cough; when coughing, he expectorated a mass that seemingly contained bloody epithelial debris from the lungs. Suspicious. English Medicine; issue pretty favorable April 5th. Works, and returns July 1st, having a thick and white discharge in left side. Tonic, arsenical powders, astringent injections. Issue favorable July 11th. Works outside, and returns April 25, 1864, for didymite of right testicle; glandered. Mercurial ointment, suspensary, and oleum phosphoratum. Destroyed May 14, 1864. No remarks!!!

No. 39—Horse, six years, having been operated for suppurative quittor, and later for corns and inflammation of sole. Showed on February 28th, 1864, a bad unilateral nasal discharge. Suspicious. English Medicine. Issue very favorable, March 17th. No relapse during my time of service, ending May.

No. 10—Horse, seven years, had distemper from August 10th to September 26, 1862, and entered on January 9, 1863, for glanders. English Medicine. Pomade of Bichromate of Potash on gland. Issue favorable on January 29, 1863. No relapse in the following sixteen months of my service. Very good success.

No. 84—Mare, 9 years, entered October 24, 1863, for suspicions of glanders and phlebitis. English Medicine; opening of abscess on neck. Issue favorable November 2d. Works and returns November 25th for adhesive phlebitis, and a bad, chronic, glandered cough; vesicatory on jugular vein, afterwards operation for phlebitis; pectoral powders, and then arsenical powders; issue uncertain February 20, 1864. Remark: cough still existing. Works and returns May 26, 1864, for periodical epistaxis. Two days later I left the company, and most likely this case turned out fatally.

No. 6—Horse, twelve years, treated for scouring, on March 26, 1863, and entered April 28, 1863, for collection in sinus; bad gland on left side, chancre and several miliary tubercles on left nostril, and a bad nasal discharge on same side. Glandered. Trephining of both maxillary sinuses on May 9th and May 12th; astringent injection; English Medicine; issue favorable August

1st. Works outside and returns November 15, 1863, for loss of appetite; a bad, staring coat. English Medicine; issue uncertain, December 29, 1863. Worked all the winter and had no relapse to the end of May, when I left.

No. 60—Mare, six years. After having been treated for sore withers, and later complete atrophy of the scapular muscles on both shoulders, showed, on April 24, 1863, a large gland, hard, indurated and adhering, and a generally good condition; a little suspicious. Pommade of bichromate of potash. The gland grows smaller; but on May 7th I discovered suddenly a dirty, brownish, glutinous, abundant discharge from left nostril; under the nasal wing three miliary tubercles and another one near the nasal septum, the latter one showing a beginning ulceration at its point; glandered. English Medicine given on May 9; mercurial ointment on gland. On May 12th, discharge less abundant, tubercles disappearing. May 20th, gland about the same, but tubercles nearly gone and no more nasal discharge. Mare sent to work, but returned on July 26th, discharging heavily from left nostril, and having a bad gland and an ulcer on same side. Tonic arsenical powders; trephining of superior maxillary sinus; astringent injections and oleum phosphoratum. All symptoms improving except gland, until September 22d, when I noticed on the right mamelle an indurated swelling, accompanied by a symptomatic œdema under the abdomen. Oleum phosphoratum; arsenical powders. Died October 29, 1863. Remark: Glanders on post mortem examination.

CLASS II.

Horses treated at first by English Medicine, and afterwards by the arsenico-strychnine powders.

Several of the cases mentioned in the First Class find application here; but to avoid repetition I merely recall to memory numbers 102, 151, 108, and 60.

No. 28—Horse, twelve years. Entered January 25, 1864, for suspicion of glanders; bad gland, and bad unilateral nasal discharge. English Medicine, and then arsenical powders; issue uncertain on March 1st. Remark: No more nasal discharge;

the gland is still there, and the horse is sent to work. No more relapse for the next two months of my service.

No. 50—Stallion, seven years old. Entered May 22, 1863, for glanders. A bad, abundant nasal discharge on left side, coat bad and general condition very poor; no gland, but Schneiderian membrane pale, showing black, dark-colored blood patches and a small ulcer in left nostril; bad cough, repeating, deep, sonorous, dry, and indicating a deep lesion of the lungs. Given immediately the English Medicine. June 5th—general condition about the same; but there is a slight swelling of right testicle, which is painful, while the testicle itself does not move on pressure; the testicular cord is also somewhat swollen; appetite poor.

June 8th—Patient is getting worse; nasal mucous membrane covered with blotches; nasal discharge very bad, unilateral and abundant; no chancre to be seen; all exterior signs and symptoms, very unfavorable; testicle and its cord a little larger and very painful; horse encounters the greatest difficulty in propelling the hind legs; general appearance very bad. Taking all these symptoms into consideration, I declare the horse incurable and advise to kill him. But the horse is young, and the Director wishes me to keep him at any cost, and try all I could, until he dies a natural death. So I gave him, besides the best and most substantial feed, oleum phosphoratum, fifty drops on June 11th, 12th, 13th; fifty-five drops on June 15th, 16th, 17th; sixty drops on June 18th, 19th, 20th, 21st; seventy drops on June 22d, 23d; eighty drops on June 24th, 25th, 26th, 27th; one hundred drops on June 28th, 29th, 30th. On this day I noticed a slight improvement in the condition of the horse; sarcocele has become stationary; coat a little better, and hair somewhat brighter; cough and nasal discharge, the same; blotches on schneiderian membrane less numerous; but the membrane under nasal wing is rough, red colored, injected and covered with miliary tubercles. A large, bad gland on left side. The phosphorus oil, so far used, had been old and weak; a new supply was obtained, and the horse was given sixty drops on June 1st, which quantity was gradually increased to seventy-five drops a day from June 1st to 15th.

On June 15th, the horse shows more vivacity, fire and energy; light movements; has gained in general appearance; gland smaller; but nasal discharge on left side, thick, white, greenish, very sticky, and forming brown crusts on outside borders of nostril; schneiderian membrane red, and has but a few blotches; under the nasal wing, the same rough tubercular surface; testicle in about the same condition; but movements of hind legs are easy and less painful.

From June 15th to July 15th, an arsenical powder was given every day with the customary days of rest; then resting one week, and recommencing again until August 27th. The patient has been improving for the last month, and this day he offers the following condition:

General external appearance very good, like that of any healthy horse; sarcocoele has entirely disappeared; movements of hind legs free from all stiffness and pain; cough nearly gone; gland very small, but hard, adhering to the bone, and painful; nasal discharge, abundant, thick, unilateral, white-greenish, and sticky; nasal membrane very red; that under the nasal wing, very rough, full of miliary tubercles, and of dark, red color; collection in maxillary sinns.

As the horse is eating well, and has regained his strength, he is put to work on the hay-cutting machine, with two other glandered horses. The inferior maxillary sinus was trephined; bursal cavity had disappeared on account of the hypertrophy of its membrane; only a little matter was found. Astringent injections were made. A hard swelling is forming around the borders of the aperture of sinus, and appears to be inflammation of periosteum.

Here my notes unfortunately cease; but the record books show that on March, 1864, he was put out of treatment, and kept at work in the horse power with other glandered horses.

No. 34—Horse 5 years, entered November 29th, 1862, for suppurative quittor and disordered blood, characterized by fine ecchymoses in the Schneiderian membrane; operation and arsenical powder; issue favorable on December 20th; works but soon has to rest, on account of distemper; when on March 27th, 1863, he

becomes suspicious of glanders ; general condition, poor ; a double, abundant, brownish, very sticky nasal discharge ; English medicine ; issue very favorable. April 5th, works again, and re-enters June 11th for irregular teeth, loss of appetite, and poor condition ; filing of teeth and tonic arsenical powders. Issue pretty favorable July 1st. Works outside, and returns July 24th in very poor condition, having a double, serous, nasal discharge, blotches on Schneiderian membrane, abscess on lips and hydropericarditis. English medicine, then arsenical powders, changed in time with tonic diuretics (ferrum sulphuricum) ; issue uncertain August 19th, 1863. Works, and returns September 19th, for general debility, loss of appetite and faltering walk ; horse used up ; arsenical powders ; destroyed December 21st, 1863. Remarks: Glandered. On post mortem, right ventricle, flabby, dilated, enlarged ; lungs, nothing ; many small ulcers in head.

I must here make a remark that can be applied to most of the horses of this company. This horse No. 34 has been a victim to hard work. I remember well that he could have been kept alive but for the brutality of the superintendent, who wanted all convalescent horses to work before they were able to stand any fatigue. Thus the frequent relapses and gradual ruin were caused, until death relieved the poor victims ; while otherwise they might have been finally cured by sufficient rest and a continued treatment.

CLASS III.

HORSES TREATED WITH ARSENICO-STRYCHNINE POWDERS ALONE.

No. 57.—Horse, 6 years, entered March 3d, 1863, for some suspicion of glanders ; a hard adherent gland, and two farcy buttons. Bichromate of potash and arsenical powders. Issue favorable March 22d, 1863. No relapse for the next fourteen months.

No. 96—Horse 7 years ; entered Sept. 17th, 1862, for farcy tumors under abdomen, and a hard adherent gland on left side ; vesicatory, arsenical powders ; issue favorable October 5th ; works and returns Nov. 10th, 1863, for pneumonia with vomiques. Tonic antipseptics. Died November 24.

(To be continued.)

EDITORIAL.

VETERINARY COLLEGES MEDICAL SOCIETIES.

When we consider the progress that the Veterinary Profession has accomplished within the last twenty years in the United States, and glance at the causes of it, we are first brought to the fact that its importance in public estimation has been greatly due to the difficulties which have been encountered in the live stock trade, through the presence of contagious pleuro-pneumonia, of trichinæ, of hog cholera, etc.; and besides this, to the good work perseveringly carried on by the generous and deserving enterprizes embodied in the establishment of private veterinary schools. That to these, in great measure, is due the standing which veterinary medicine now maintains in this country, will be acknowledged by most or all, and that to this source also is due the professional acquirements and advanced qualifications now possessed by the young practitioners of our times. For the public all of those may be due to the lectures, to their attendance, to the general education that young men receive in their respective colleges. There is no doubt that didactic and clinical lectures do much for thorough education—that attendance in the dissecting-room, on the clinics, and on patients in the hospital wards, have much to do in that direction. But there is also another method of education which is perhaps ignored by some, or overlooked in its importance, and that is the benefit which is derived by the students from the College Medical Society.

In many medical schools this is a society composed of the students, in which advanced and senior students meet, read and discuss papers for their own improvement. There is no doubt that much benefit is derived in this way by those who attend. The papers which are read by the speaker of the day of meeting often show much ability, containing a large amount of careful thought, labor and research. We have at times published the essays thus coming from the pens of students at the American Veterinary College, and it is with pleasure that we print one to day from the Ontario Veterinary College. In these papers, and

formed his work, which was that of carting, in a satisfactory manner. He had never manifested symptoms of general disease, and had always fed well and kept in good condition.

Five months previous to his being sent here, the owner noticed the appearance of several little nodules, about the size of a pea, on the left side of the neck. These ulcerated and ran together, forming a raw granulating surface. In a short time other nodules developed on various parts of the integument covering the head, neck and face, all of which passed into a state of chronic ulceration.

At the time of examination, a large ulcerating surface was observed on the right side of the face, extending from the intermaxillary space to the upper border of the nostril, and from the commissure of the mouth to about three inches below the orbit. The ulcer was covered with greyish, hard, adherent scabs, which, when removed, revealed an uneven surface, covered with rugged depressions. The alæ of the nostril had been destroyed, and the diseased process extended in as far as the lachrymal opening. The mucous and submucous tissues had been involved, and the sore here presented ragged, everted edges of a violet or purple hue.

Eroded surfaces similar to this, but smaller in size, were found between the ears and on the left side of the face and neck.

On the left side of the neck was a patch of skin, devoid of hair, somewhat depressed in the center, with the surrounding integument drawn up, so that the whole presented the appearance of a cicatrix resulting from a burn. The surface contained several little tubercles, covered with a branny epidermic desquamation, firm and painful to the touch. According to the owner, tubercles similar to these had invariably preceded the ulcerative process in other parts of the head and neck.

SOCIETY MEETINGS.

NEW YORK STATE VETERINARY SOCIETY.

The regular monthly meeting of the New York State Veterinary Society was held at the American Veterinary College on the evening of January 9th, 1883, at 8 o'clock, with the President in the chair.

After the calling of the roll and the reading of the minutes of the previous meeting, Dr. Fred. Saunders read a paper on "Exostosis of the Hock," in which he discussed the Etiology, Pathology, Semiology and treatment. He cited cases in which spavin was evidently congenital, being manifested before the colts had attained the age of five years, and referred to the immunity from this disease that exists in horses with large development of the bones of the hock. He described the causes, effects, and termination of spavin, to some extent, and then discussed the symptoms and diagnosis. Rest, he considered the most important factor in the treatment, but considered one or more applications of blisters as beneficial in cases of short duration. The actual cautery he believed in using only as a last resort or in aggravated cases. As to the operation of tarsal tenotomy, he said: "I cannot very well understand, how it will benefit a horse if the spavin is complicated with inflammation of the articulation. This operation is indicated only in mechanical lameness."

In the course of the discussion that ensued, Dr. C. C. Cattanaach reported a case in which a horse that was very lame from a spavin received immediate relief from the operation of tarsal tenotomy. Dr. Crane considered this operation indicated only in cases of low spavin. He doubted if rest alone would result in more than temporary benefit, and recommended the application of the actual cautery in all cases of hock joint lameness at the start.

Dr. Field endorsed this view, stating that the only success he had ever had in the treatment of spavin was by the use of the firing iron.

Dr. Coates said, "Cold applications are indicated, in cases of periostitis, before blistering, and this treatment is at times sufficient. Tarsal tenotomy is useful in cases of extensive exostosis around the internal tendon of the flexor metatarsi muscle."

Dr. Michener recalled cases of spavin of some years standing with bone enlargements, in which blistering relieved the lameness, but the tumors remained.

Dr. Foote recommended placing horses at pasture during treatment for this disease, estimating rest in this manner as more valuable than rest in the stable.

Dr. Liautard closed the discussion with the following remarks : " As to the particular rest the horse is to have, I have had cases in which the ordinary treatment has been resorted to, and the animals placed in box stalls or in barn yards and the recovery has been imperfect, or not permanent, while similar cases that received their rest at pasture were permanently relieved or cured. At pasture we are placing the animal under circumstances favorable to complete ankylosis of the hock resulting, or to the formation of a false joint. With this treatment the horse is not so liable to do further injury as though placed in a box stall, or receiving exercise in the halter. The actual cautery, I am tempted to say, use from the start. I don't think that the complications of this operation amount to anything. We must consider the horse as a machine, so the blemishes resulting are of slight consequence. I don't mean to say that I would fire every case of hock lameness, but if I thought there was danger of exostosis, or if that already existed I should advise firing. Tarsal tenotomy is well enough where we find we diagnose an exostosis without joint lameness, but it must not be depended upon for every case of hock lameness."

A vote of thanks was tendered the essayist, after which the society went into executive session.

The name of Dr. D. J. Dixon was presented for membership and referred to the Committee on Nominations.

Dr. Foote was appointed essayist for the next meeting, to be held at the American Veterinary College on Tuesday evening, February 13th at 8 o'clock.

The meeting then adjourned.

H. T. FOOTE, M.D., V.S.,
Secretary.

STEAMSHIP VENTILATION.—The steamer Victoria, which sailed for Liverpool from Boston on January 11th, landed 1,580 sheep and 378 oxen. This is the sixth trip she has made with the new system of ventilation by extra panels and air shafts in the funnel casing. During this time she has carried 7,846 sheep and 3,211 head of cattle, and has only lost nine cattle on the passage.—*American Cultivator*.

REVIEW.

ANATOMICAL TECHNOLOGY AS APPLIED TO THE DOMESTIC CAT.

An Introduction to Human, Veterinary and Comparative Anatomy; by BURT G. WILDER, B.S., M.D., Professor of Physiology, Comparative Anatomy and Zoölogy in Cornell University, and of Physiology in the Medical School of Maine, Member of the American Neurological Association, Fellow of the American Association for the Advancement of Science, etc.; and SIMON H. GAGE, B.S., Assistant Professor of Physiology and Lecturer on Microscopical Technology in Cornell University, Fellow of the American Association for the Advancement of Science, etc. New York and Chicago: A. S. BARNES & Co., 1882.

This work must fill an important place in anatomical literature. It has grown, as the authors tell us in the preface, out of the ascertained needs of students preparing for practical work in Human, Veterinary or Comparative Anatomy, and its methods have stood the practical test of years in the anatomical laboratory of Cornell University. It has the great advantage, for the beginner, of assuming no previous knowledge of the science, but, giving full instructions as to the instruments and methods, it furnishes the student with the means of pursuing his studies in private, and upon a subject which is at once cheaply and universally obtainable—the domestic cat. The work does not aim at giving a complete descriptive anatomy of the cat; in place of this, it instructs in the best method of dissection and study for each organ or region, and in a sufficient number of examples goes into detail, so that the student feels that he is well panoplied for the further intelligent dissection of the same animal or of any other. And the special advantage is, that it aims to introduce a knowledge of the more complex structures, by first laying a foundation in the more typical or simple. Thus in the case of the brain, which medical students usually begin to study on the human subject, cutting the organ in slices from above downward, and learning with the greatest effort and disgust a series of barbarous names for objects appearing in succession and bearing certain relations to each other, our authors adopt the more rational plan of presenting first the simple amphibian brain, where there but a few of the more important and constant cerebral ganglia clustered round the cephalic

end of the spinal cord ; and upon this, as a basis, they naturally build the additional ganglia, in a way the student can more easily and intelligently grasp.

The great attention bestowed upon the viscera generally, alike as regards their structure and their relative position, is an important feature of the book ; and the way in which this is illustrated by sections from frozen bodies, and the instructions given for making the same, help to familiarize the student with a subject which is too often pursued in a superficial and perfunctory manner.

A special feature of the book is the attempt to introduce an improved nomenclature.

Those of us who have taught comparative anatomy have long felt the need of a new departure in this field. Our current nomenclature has been based largely on anthropotomy. Objects which have a given form in man retain in animals names indicating that form, though these designations become quite meaningless, or worse, misleading. Thus, in the horse, the *pisiform* bone is a *disc curved* upon itself, the *cuboid* is a *parallelopiped*, while the tarsal *scaphoid* and *large cuneiform* are both *discoid*. The *supra spinatus* and *infra spinatus* muscles become in the quadruped the *antea* and *postea spinatus*, the *pectoralis magnus* becomes the *pectoralis parvus* ; and in the matter of size, the same applies to the *gluteal* muscles. Objects which in the erect form of man are respectively *posterior* and *anterior*, are in the horizontal quadruped *superior* and *inferior* ; while those that are *superior* and *inferior* in man are anterior and posterior in the quadruped. The common use of *superior* and *inferior*, sometimes referring to the relation to the centre of the body, and sometimes in their general relation to the earth and surrounding objects, is often very misleading. Those of us who have fought the battle with all the meaningless, misleading, bizarre and conflicting names of modern comparative anatomy, and to whom they have become familiar and easy, do not take kindly to any proposal to acquire a new method differing in many respects from all. But if we are engaged in teaching, we recognize at once the advantage to the student, and indirectly to the teacher, of any system which will approximate our present varied nomenclature to one systematic and intelligent

plan, that could be used in common by the anthropotomist, the veterinary anatomist and the comparative anatomist, and by those of all nations. No perfect system of this kind is to be expected; nevertheless such an approximation to this may be secured as will greatly facilitate teaching and study by making every statement clear, definite and easily apprehended, and at the same time devoid of implications which will be misleading when we come to study the same parts in different animals.

Without presuming to endorse all that the authors have proposed in this direction, we hail much of it as a most important advance on old methods, and trust that the good work in this direction will not cease until something like a rational nomenclature shall have been adopted. The following may be particularly noted as illustrating the direction the authors have taken: Instead of the *superior* and *inferior* of man and the corresponding *anterior* and *posterior* of animals, they adopt the words *cephalic* and *caudal* in describing the positions, parts and aspects of organs. These have precisely the same significance to man and animal and are equally intelligible to the scientists and students of all tongues. The objection that the same words are used in a specific sense for the structures of the head and tail respectively could be easily obviated, we would suggest, by using other distinctive terms for these, e. g. use the term *coccygeal* for the structures proper of the tail. Regarding relations in another direction, the terms *dorsal* and *ventral* at once do away with the antiquity attaching to *superior* and *inferior*, etc. All ambiguity may be avoided, as the authors point out, by adopting for the term *dorsal* that of *thoracic* in describing the vertebrae of the back. Then as regards a position, central or lateral as regards the body, the term *meson* is proposed for the central line, while *mesal* will imply a position towards the median line, and the generic *lateral*, and the more specific *dextral* and *sinistral* imply position to one side of the median line.

Again, to imply position or relation superficial or deep we find the words *ectal* and *eutal* which give give a definite idea not to be obtained from *inner* and *outer* now in common use. In each case the adverbial form secured by changing the terminal *l* into *d* implies a direction as specific.

But we cannot pursue this subject further. The movement is one in the right direction and if fostered and corrected and improved as further experience shall dictate, will do much to facilitate anatomical study.

The authors have been no less careful with the illustrations, than with their descriptions and instructions. Many of these are diagrammatic and typical, but when they are given as illustrative of the actual structure, their conscientious accuracy is especially to be commended. A very striking example of this is furnished in the section of the cat's eye on page 524. Comparing this with the section of the cat's eye as furnished by Mivart, one is at once struck by the dissimilarity. That given by Mivart represents the segments of two spheres, the larger represented by the sclerotic and the smaller by the cornea, as in the human eye. Wilder and Gage on the other hand show the cat's eye as a cone, with its base posteriorly and its rounded apex turned forward and represented by the cornea. Similarly, Mivart gives the lens with the posterior surface the most convex, like that of man, while Wilder and Gage show the anterior surface the most convex, as it really is in the cat. Even to the remarkable thickening of the sclerotic at its anterior border, the point of muscular attachment, and its attenuation behind—the peculiarity of the cat's eye is marked out with a most faithful hand.

Not the least valuable feature of this book is the bibliography, which covers over fifteen pages, and furnishes the student with a most extensive index to the literature of the subject.

J. L.

CORRESPONDENCE.

TUBERCULOSIS IN COWS.

NEWTON, January 10, 1883.

Dr. Liautard :—

DEAR SIR.—I have sent you to-day, by express, a box of pathological specimens, which I hope may be of interest to you and the gentlemen of the faculty, and instructive to the members of

the class. I wish to apologize for not sending better prepared specimens, but the post mortem was made between half past four and five in the afternoon, and in an open field, with the thermometer on the road to zero, and with every prospect of soon getting there; consequently the knife and axe flew.

These specimens were from a Guernsey cow of imported stock, and I will endeavor to give you as full a history of her case as possible, because she showed so many of the characteristic symptoms of the disease, which you will find so well marked in the specimen.

This cow came from Philadelphia, where she was purchased at an auction sale some two years ago, with several others (four, I believe). She was placed on the farm, and has had the same care that the rest of the cattle have had, until within the last two months. A few months after being brought here she aborted. When the first period of œstrum came round after the abortion, she was not sent to the bull; when the second period came on she was served by an Ayrshire bull that got loose in the barn and found her out. Since this time of service she has neither been in heat, nor had a calf, nor has she aborted again, so far as I can find out; and these cattle are constantly under careful supervision. I saw her first November 8th, 1882, at which time the owner asked me to see if I could discover any reason why she should not become pregnant, and gave me the preceding history. I made an examination, and could find nothing in the way of growth or malformation, to account for the trouble. I suggested a change of bull, and as the cow was in good condition, no medicine.

At the same visit I examined three other Guernseys which had just come from Philadelphia, where they had been kept since their importation in the spring. One of these had a slight cough, but as there were no other signs of disease, I laid it to a change of location and lack of acclimatization of these animals. You may hear further at another time. In fact, I was called to see the one with the cough, December 20th, and the subject of this letter was incidentally shown to me as being lame. When the owner first showed me the cow, he told me that of the cows that came with this one, all had died with tuberculosis. Hence, I was at once

warned what to suspect, and then, when speaking of the case to Dr. Thayer, he said that they had tuberculosis, for he saw them. December 20th, when I went to see the cattle, Dr. Winchester went with me to see the cases. We found cow No. 1 with a temperature of 103°, dullness on percussion on the lower third of the right lung, loss of respiratory murmur, dropping of the left ear, intermittent lameness, sometimes in one extremity and then in another, but generally in both hind legs. When in a box stall, she would travel in a circle for many minutes, and almost always with the right side toward the centre, and when walked in a straight line would go sidling along.

We made a diagnosis of tuberculosis, ordered the animal to be isolated, and proposed to the owner that she be destroyed.

To this he would not consent, but desired me to keep her along and let her die; she has, however, grown worse since December 20th, and I saw her losing flesh; appetite capricious; loss of strength, and increase of circular motion, so that she would go round and round and then fall exhausted.

Last Monday the owner gave me permission to destroy her, and taking Dr. Howard with me, I went to the farm.

On opening the right side of the chest, we found the lower half of the lung a mass of tubercular deposit, and adherent by a portion of its surface to the second, third and fourth ribs, which portion I cut out, and reserved for you. The left lung was slightly affected. The liver, a portion of which you have, was studded with tubercles. I could find no tubercle in the mesentery. The ovaries were diseased. The one I cut was filled with fluid, and as you will see the other is similarly affected. Night coming on made our labors more like butchering than a careful post mortem.

The cow No. 2 is wasting away, and I expect permission will be given to kill her in a few days. If so, I will try and get some more specimens.

Yours,

BUNKER.

[It is to be regretted that in the presence of such extensive tuberculization, and with the symptoms given, a careful examination of the brain and its envelope was not made.—Ed.]

ANTIPYRETIC EFFECT OF QUININE—ITS USE IN PNEUMONIA.

DANVILLE, KY., January 9, 1883.

Editor Review:

In this season of cold rains and sudden changes, we expect to have many cases of pneumonia to treat, and in looking over my case book I find the record of a case that may prove interesting to your readers. April 28, 1882, I was called to see a valuable combined bay gelding, 16 hands high, 5 years old.

The horse had been kept in a most excellent stable, and was fed and groomed for the market. I found him standing in his stall, head down, nose protruding, respiration labored, and a deep, paroxysmal cough. Auscultation gave distinct crepitant rales of pneumonia on both sides. The respiration was 46 per minute; pulse, 97; and temperature per rectum, $108\frac{3}{5}^{\circ}$ F. I was surprised at the high temperature, and took it four or five times in the course of 30 minutes, to be sure I had made no mistake. The extremities were warm, but movements stiff. Prescribed: Sulph. Quinia gr. xl., Dover's powder, 3j—m.—one every two hours. Also, Tr. Aconite Rad m. xx., every two hours, the two alternating. Applied hot fomentations to the sides by cloths wrung from hot water. The fomentations were kept up through the night.

April 29. The patient about same, but a more haggard look. Respiration 36, and labored, but the cough less frequent; pulse, 90; temperature, 108° ; about the same that it had been for 36 hours. Gave a dose of Sulph. Quinia, gr. lx, Dovers' powder 3j, with hypodermic injection of morphia sulphate gr. ij. In one half hour the temperature fell one-fifth degree. In one hour more gave Quinia Sulph. gr. xl, making 100 grains given in $1\frac{1}{2}$ hours. The body was kept packed in hot blankets. The temperature steadily decreased, and at the end of $1\frac{1}{2}$ hours had fallen 1° .

The succeeding treatment consisted of Quinine and Dovers' powder in 40 gr. doses, with 1 ounce nitrate potassa, dissolved in water—every 24 hours. The bowels were kept open by repeated enemas, and loosened by green grass and mashes, as appetite returned. By the 8th of May the horse was convalescent.

The point of interest to me in this case was the extremely high

temperature, lasting for so long a time, and the demonstration of the sustaining and antipyretic action in the horse, of large doses of Quinia Sulph. GEO. C. FAVILLE, D. V. M.

NEWS AND SUNDRIES.

Cerebro-spinal, and spinal meningitis prevails to some extent in the vicinity of Goat Farm.

A GOAT FARM has recently been established in England for the purpose of supplying goats' milk to London infants and invalids. —*Medical Record*.

IMPORTANCE OF QUARANTINE REGULATIONS.—In South Africa the raising of cattle has almost entirely ceased, owing to the fact that several years ago a Holland bull was carried there afflicted with the lung disease, which, before it could be stopped, spread beyond control. This should prove a warning to American farmers. Congress should make a law forbidding the removal of cattle from any infected territory until they have undergone a period of quarantine.—*American Cultivator*.

SUBSIDY TO PASTEUR.—The French Minister of Agriculture has lately placed at the disposal of M. Pasteur a new sum of 50,000 fr. (\$10,000) in order to continue his valuable investigations of the contagious diseases of animals. The government had already granted to the illustrious savant, for the same object, 50,000 fr. in 1880 and 40,000 in 1881. The minister consulted a special committee, who, in view of the brilliant success obtained by Pasteur in his previous investigations, unanimously recommended a renewal of the grant.—*Independent Practitioner*.

ONE MORE BACILLUS.—At the instigation of Drs. Loeffler and Schiitz, of the Berlin Imperial Sanitary Bureau, the etiology of farcy has been carefully investigated. As was anticipated, the specific micro-organism of this disease was soon discovered. Numerous "culture" experiments have already been made, and horses have been successfully inoculated with the isolated germs. One

by one the contagious diseases are wheeling into line. The time seems not far distant when they will have been all safely captured by the bold and ever active bacteriologists.—*Medical Record*.

NAPHTHOL IN SKIN DISEASES.—Kaposi states that care should be observed in the use of naphthol in skin diseases to avoid surfaces denuded of epithelium, and never to apply it to the entire body. When these precautions are observed, the remedy is wholly without danger, and is of great value in many affections. In eczema it is indicated only in the squamous stage, when the diseased parts are but slightly hyperæmic or even pale. In scabies, one application of naphthol, combined with chalk, green soap, and lard, is usually sufficient for a cure. In the various forms of acne, good results follow the employment of naphthol. The remedy is of especial value in the parasitic affections of the skin, as herpes tonsurans and favus. Pediculi are quickly exterminated by a ten per cent. solution of naphthol in olive oil.—*Prager Med. Wochenschr.*, No. 33, 1882.

EXCHANGES, ETC., RECEIVED.

FOREIGN.—Revue für Thierheilkunde und Thierzucht, Oesterreichilche Monatschrife für Thierheilkunde, Archiv für Wissenschaftliche und Practische Thierheilkunde, Repertorium der Thierheilkunde, Schweizerisches Archive für Thierheilkunde, Clinica Veterinaria, Veterinarian, Veterinary Journal, Gazette Medicale, Archives Veterinaires, Recueil de Medecine Veterinaire, Journal de Zoötechnie, Annales de Bruxelles, Revue d'Hygiene,

HOME.—American Farmer, Spirit of the Times, Turf, Field and Farm, Medical Record, American Agriculturist, Country Gentlemen, Rural New Yorker, Breeders' Gazette, National Live Stock Journal.

NEWSPAPERS.—Farm, Home & School, Farmers' Review, Home Farm, Weston's Medical Report.

COMMUNICATIONS.—G. Faville, M. Bunker, Prof. James Law, Prof. A. Smith, J. C. Meyer, Jr., R. S. Huidekoper, M.D., J. S. Kemp.

PAPERS.—W. B. Miller, Toronto College Medical Veterinary Society, Report of Treasury Cattle Commission, F. Saunders.

especially in the one last-mentioned, the author shows his desire of working in the ranks of the profession, and exhibits evidences of a laudable and ambitious desire to elevate the science, by thus throwing in his contribution towards advanced progress. It would well become all veterinary students to follow in the line of those who have done so well, for in so doing the benefits would be for themselves, for their colleagues in study, for their alma mater, and above all, for the profession of their choice.

SANITARY VETERINARY BOARDS—VETERINARY HEALTH BOARDS.

In a recently published medical paper, complaint was made that a Veterinary Board should be supported by Congress, while the National Board of Health was allowed to famish. In our last issue we made some remarks on this subject, and we publish to-day the report of the Treasury Cattle Commission. The report will speak for itself, and shows that what has been done has been done well, and that the Commissioners deserved credit for their labors.

We do not wish to have it understood, however, that we consider the Veterinary Board superior or more useful than the National Board. Far be such an idea from our mind. But what we think ought to exist, what we believe Congress on one side, and State Legislatures on the other, ought to enforce, is the *connective and collective work of the Medical Sanitarians with the Veterinarians*. In other words, we believe that if the people of our country could be made to ask their legislators that the two interests should be combined, so far as the general public health is concerned, much benefit would result. The National Board of Health has been, we believe, a separate and distinct Board, working by itself separately from the Boards of Health of other States and cities. This, we think, is an error; such, in fact, as may be charged upon many other organizations with similar objects, which do their good for a certain time and then die out to be forgotten, as to any of the fruits of their existence, proving thus the folly of their modes of labor.

A National Board of Health is as indispensable in this coun-

try as similar organizations are in Europe—and as in Europe, one of its principal and essential departments will be a Veterinary Sanitary Department. We feel satisfied that the greatest and possibly the only error which can be alleged against the National Board of Health, is that it ignored, to a great extent, the usefulness of veterinary science.

And if this was the case with this institution, what can be said of our State or City Boards of Health? Are they less guilty? Do they appoint veterinarians on their staffs? Do we see, as we do in Europe, veterinary surgeons occupying the ranks they are entitled to among the membership of the public sanitary bodies? Have they any regulations of any value which define their duties or their rights in cases of contagious diseases of animals? Do we see them occupying any of the positions of meat, market and slaughter-house inspectors, to which they are entitled by their education and their professional knowledge? No; with very few exceptions, veterinarians seem to be entirely ignored as to their usefulness as guardians of the public health; and as long as this shall be so, no City, State or National Board of Health can fully claim to be beyond reproach, no matter how well their labors may be carried out.

CORRECTION.

The following letter makes a correction in an article in our last issue. The case had escaped our attention, probably as not being altogether of the same nature.

Prof. Liautard:

DEAR SIR:—In the last issue of the REVIEW, in reporting a “Rare Dermoid in the Horse,” you say the only case we can find on record, at all similar to this case, can be found in the *Veterinarian*, etc. Please refer to Vol. V., No. 11 (February, 1882), of the AMERICAN VETERINARY REVIEW, page 496, correcting a typographical error on page 497, and you have your attention directed to a *derm cyst*. Am I right? Fraternally, etc.,

GEORGE C. FAVILLE.

NOTICE TO OUR SUBSCRIBERS.

With the next number of the REVIEW, the sixth volume will be completed. We have mailed to a few of our readers whose subscriptions remain unpaid, a statement which we hope they will honor, as unless the amount is settled, we shall be obliged to stop sending the REVIEW, and to consider the silence of our friends as a notice to close their subscriptions. We have received information that there are numerous duplicate numbers in the possession of several of our friends. If they will mail them to us, at our expense, we will print in our next issue a list of the numbers received, and shall then be able to supply many incomplete files. We have now on hand a few numbers of Volumes III. and IV., which may be had for \$2.00 a volume.

CLINICAL CHRONICLES.

BY A. LIAUTARD.

It is generally admitted by helminthologists that cattle are subject only to two special kinds of tapeworms, the *tenia expansa* and the *tenia denticulata*. The report which we present to-day, from the observation of Mr. Peters, student in the A. V. C., seems to show, however, that these animals are not altogether free from other forms of these parasites, the examination made of those found on the *post mortem* examination of the cow which was destroyed, as suspected of being affected with tuberculosis, showing that the animal had suffered from *tenia mediocanellata*—a tapeworm, which, found commonly in other animals and in man is, however, found to infest cattle when in its immature form, and giving rise then to that peculiar affection known as measles. In these cases the external muscular tissues of the shoulder and haunch, and the diaphragm, and, according to Cobbold, the loose cellular and fatty tissues, and even the heart, are found filled with the cysticerci. The suggestion made by Dr. Birdsall, who kindly examined the specimen of the tapeworms, as

to the manner in which this *tenia mediocanellata* develops itself, is worthy of notice and deserves the inquiry of practitioners who might observe similar cases.

♂ TENIA MADIOCANELLATA IN A COW.

BY A. PETERS, *Student*.

In July last this cow, a three-year-old Jersey, owned by E. H. Austin of Gaylordsville, Conn., was noticed to be unwell. This was not unexpected, as her grandmother had died five or six years before, and her mother two years before, with very nearly the same symptoms. An aunt of this cow, by a native bull, had also died with similar symptoms.

Symptoms.—Emaciation and weakness; shrinking of and a final cessation of the milk secretion; swelling in the sub-maxillary region, which would vary in size, being larger at some times than at others. Later on in the disease, there was a persistent diarrhoea, the fœces being very liquid, and not yielding to simple treatment, such as dry food, gruels, etc.

Post mortem examinations were made on the grandmother and mother by a butcher, who said he failed to discover any abnormal condition of the lungs or intestines. Still, from the history of the case and the symptoms, a probable diagnosis of tuberculosis was made. On the 7th of November, 1882, the cow was destroyed, and a post mortem examination made. No tubercular deposits could be found, either in the lungs, which were perfectly healthy, or in the intestines or mesentery. The sub-maxillary lymphatics were somewhat enlarged and hardened, but in other respects were normal. The whole intestinal tract was, however, very much inflamed and congested, particularly the small intestines. There was a large secretion of a muco-purulent matter in both the large and small intestines, and the small intestines were very much softened, tearing very easily; the mucous membrane could easily be scraped off with the thumb nail. In the small intestines were two large tapeworms, each about six feet in length. They were more like those found in the human family than any that have ever been described as infesting bovines.

The presence of these tapeworms readily accounts for the emaciation, diarrhoea and intestinal irritation; but it seems impossible to account for the apparent heredity of these symptoms. The other cows of the herd have always been perfectly healthy in every respect. The great grandmother of this cow is living on a farm near Hartford, and her owner says she is as well as any cow of six years—she is eighteen years old.

Prof. Liautard :

DEAR SIR.—The specimen which you left for examination—a tænia from a cow—is undoubtedly a *Tænia Mediocanellata*, a beef tapeworm. I found but one head, and think all the segments in the bottle belong to one strobila. My reasons for concluding that this is a *Tænia Mediocanellata* are based on, 1st, The head, which is truncated, has four large disks, is hookless, and has no proboscis. 2d. The segments show quite a number of monstrosities, or imperfectly shaped proglothides, more frequent in this form of tænia than any other. The general shape of the segment and the arrangement of uterine branches are also confirmatory. I have mounted the head, which I will send or bring you soon, and enclose a rough sketch of the head and abnormal proglothides.

Can it be determined whether the cow could have obtained fresh meat, in any way, by accident or from a slaughter-house? I do not know whether the embryo and placenta are ever infested with the beef measle or immature form of *Tænia Mediocanellata*. I see no reason why they might not be. As cows have the habit of devouring the placenta and membranes, might not this be a plausible method of infecting the same animal with the mature form? It would be a rare method, as it requires an unusual coincidence between development of measles and delivery.

The idea has occurred to me, and I throw it out as a suggestion.

Sincerely yours,

W. R. BIRDSALL.

The benefit that the surgeon obtains by the use of anæsthesia is undoubtedly of greater importance in human than in veterinary medicine. With the former, besides the relief from pain, there

is that of nervous shock or moral influence, which plays so important a part in the recovery of the patient. With the veterinarian this last condition scarcely exists, if it does, and probably for this reason anæsthesia is not so commonly used. Probably, also, as the injuries that may accompany the operation of casting, such as broken back, being likely to take place while the anæsthetic is given, during the struggles of the first effects of the medical vapors, veterinarians hesitate also to have recourse to their benefits. There are, however, peculiar conditions where it becomes a necessity, and in which neglect of employing it might give rise to severe complications. Amongst those are the operations which, at times, rare as they may be, are performed upon the eyes, or in cases of hernia. But if the ordinary sequelæ of casting are also likely to be met when the anæsthetic is given, there are other complications which the veterinarian may meet, and against which, often, he has but little control, no matter how careful he may have been. Amongst these is the condition of syncope, which may suddenly take place, especially if the patient is suffering with some diseased condition of the heart, which has possibly escaped notice, or which, on account of some peculiar condition, could not be detected. Hypertrophy of the heart with fatty degeneration of its muscular structure is probably the most common condition in which the closest examination remains useless and fails to reveal the true state of affairs. The truth of the possibility of such condition, and of its fatal result, is illustrated in the report which we publish to-day from the pen of house surgeon Dr. Kemp, in which an animal lost his life from syncope during the administration of a small quantity of ether, due to a fatty degeneration of the heart, with hypertrophy of the whole organ, a diseased state which was not suspected, though careful examination of the condition of the circulatory apparatus had been made in this rather vicious animal.

p FILARIA OCULI—FATTY HEART—SYNCOPE AND DEATH DURING
ADMINISTRATION OF ETHER.

BY J. S. KEMP, D.V.S., *House Surgeon.*

On November 21st, a bay gelding, eight years of age, sixteen hands high, was brought to the clinic, exhibiting in the anterior

aqueous chamber of the eye a threadlike parasite. Several weeks previous, the owners of the animal had noticed a whitish appearance of the cornea, and closer inspection revealed the presence of a delicate worm, about four inches in length, and scarcely the thickness of a thread, swimming about in the aqueous humor, moving incessantly. At the time of examination, considerable keratitis existed with marked opacity of the cornea.

As the presence of the filaria did not interfere with the general health of the animal, or with the performance of his work, the owners naturally hesitated about the performance of an operation for its removal, which, as the horse was of a vicious disposition, and particularly rebellious to any manipulation in the vicinity of the affected eye, would necessitate his being cast and anæsthetized. However, he was again sent to the hospital on the 5th of January, with directions that the necessary steps for the removal of the parasite should be taken.

At four o'clock on the 9th, after the usual preparatory measures had been taken, the horse was cast and anaesthetic ether administered by inhalation. The stage of preliminary excitement, which lasted about five minutes and during which time the animal had received about two ounces of ether, had scarcely terminated and the operator was about to proceed, when the pulse, which had hitherto been strong and regular, became suddenly imperceptible; two deep and rapid inspirations were taken, followed by a general convulsive movement, then respiration ceased. The ether was removed on the first appearance of the alarming symptoms. Artificial respiration was immediately resorted to, and kept up for an hour, during which time intravenous injections of ammonia were given with inhalations of the nitrite of amyl. Blood was copiously extracted through the jugular vein, but animation could not be restored.

In the meantime an incision was made in the cornea near its junction with the sclerotic, with a Beer's knife, which was then given a gentle rotatory movement, thus allowing the aqueous humor to escape. The parasite refused to flow out with the liquid and was drawn forth by a pair of forceps, which were introduced into the anterior chamber through the incision.

On the following morning a post mortem examination of the thoracic organs of the horse was made. The heart, when removed, weighed eleven pounds. The right ventricle was much dilated, and contained a little fluid blood. The wall of the right ventricle was soft and flabby, and in contact with the median septum. It measured a little over one centimeter in thickness near the base, and two centimeters near the apex of the cavity. The left ventricle was empty and its external walls measured four centimeters. The inter-ventricular septum measured three and one-half centimeters. The auricles were empty. The muscular structure of the left ventricle and of the median septum was yellowish in color, soft and readily broken down.

A microscopic examination was made by Dr. G. L. Peabody of the New York Hospital, to whose kindness we are indebted for the following interesting description: The muscle-fibre cells from the left ventricle were so granular, by the reason of the presence of fat, that the normal transverse striation could with difficulty be made out in some places. In most places the striæ were completely undistinguishable. There was also an abnormal amount of fat between the bundles of fibres in the connective tissue. The muscular structure of the right ventricle and of the interventricular septum were less disintegrated. Very generally the transverse striæ could be seen. Still, even in these places, every now and then could be seen a muscular fibre-cell, which appeared like a tube filled with granules of fat.

This extensive diseased group had escaped all investigation, as by the condition of the pulse which, though weak, was regular, an examination of the heart was not made, and even if it had, would probably have proved useless on account of the nature of the disease as well as the vicious character of the animal.

REPORT OF CASE.

A CASE OF LUPUS EXEDENS.

By J. S. KEMP, JR., D.V.S., House Surgeon.

The subject was a brown gelding, nine years of age and weighing about 1,200 pounds. He had been in the possession of his present owner for two years, during which time he had per

AMERICAN VETERINARY REVIEW,

MARCH, 1883.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

BY A. ZUNDEL.

(Continued from page 467.)

NAVICULAR DISEASE.

VI.—*Etiology*.—To properly understand the etiology of this disease, one must bear in mind the part played by the anterior legs in the action of locomotion. Columns of support more than of impulsion, it is their office to sustain the weight of the body when it is thrown forward by the extension of the hind legs. The reaction of the ground is first felt at the shoulders, through the muscular slings which attach them to the trunk, but it is partly diminished in the scapulo-humeral joint, which closes, notwithstanding the resistance of the muscles implanted on its apex. The remaining force is transmitted to the vertical column, represented by the union of the radius, the carpus and the metacarpus. Reaching the digital region, this force is there decomposed. Part of it, passing on the phalanx, loses itself and disappears in front of the horny box of the foot, the other being thrown upon the flexor tendons, and finally upon the perforans, which distributes it to the posterior parts of the foot, and to the navicular

bone. It must be observed that in this complex action of decomposition of the shock, the os sesamoid, though pushed from before backward by the os coronæ, is, however, supported by the resistance of the perforans tendon. Consequently, both the bone and the tendon are pressing upon each other, when the feet are placed on the ground, throwing the body forward by the impulse of the hinder parts, and thus press powerfully against each other.

When this pressure takes place in an animal going full speed, and a good and high stepper, it may commence by becoming merely a slight contusion, but, if often repeated, the result may be some lesion upon the corresponding surface of the bone and of the tendon, or of the synovial which facilitates their movements. But the energy of action in the animal cannot be considered the only producing cause of these lesions, as a vice of conformation in the foot, a want of elasticity in its posterior parts where the resisting power is diminished, may also produce it. The disease, then, is observed in animals whose plantar cushion, covered by a small, dry and atrophied frog, is itself badly developed, from being compressed between the bars, which are more vertical, or the heels, which are more contracted; all these being conditions which diminish the flexibility of the back of the foot.

Two principal causes, then, co-operate in the genesis of navicular disease, and are almost always present in animals thus affected. On the one hand, it will appear amongst well-bred animals, especially those of English breeds, those from Hanover, Mecklenburg and Normandy, which will be more affected. Loiset and Lafosse, however, have seen it in common breeds, in animals with flat feet and soft horns. Lafosse says he has seen it in mules. But besides this influence of the breed, there is the effect of what we may denominate the hygiene of the foot: the too dry bedding, certain wrong modes of shoeing and all the predisposing causes of contracted heels. Let us add also, as a cause, the effect of changing the animals from marshy fields, where they were walking on soft, damp ground, to stables with dry bedding—a cause commonly present in horses transported from Northern Germany to the south. Hard work and excessive exercise are also causes of this affection—for example, jumping fences with a

heavy rider, slipping in steeple-chases, racing, a sudden stop on the forefeet, especially on stony, hard, frozen or rough grounds. All these are fruitful causes of navicular disease.

Traumatic causes, such as punctured wounds, involving the sesamoideal sheath, are also productive causes which may originate navicular disease. We do not believe in internal causes, nor admit, with Loiset, that visceral inflammation, sudden arrest of perspiration, especially of the lower part of the legs, can produce the disease. We should rather anticipate that these metastases would affect more the more important serous structures. Neither can we admit, with Lafosse, that this affection can also follow a sudden arrest of the milky secretion.

VII.—*Treatment*.—We have seen, in speaking of the terminations of this lesion, that in certain peculiar circumstances which may be accounted favorable to the return of the elasticity of the foot, a spontaneous recovery is possible. This leads us to the measure of the prophylactic means proper to be used; and it seems evident that by a better hygiene of the feet, by rational shoeing, sometimes by putting young horses only gradually to fast work, one may, in many cases, avoid navicular disease.

While it is in its first stages, one may with care and patience, sometimes relieve the patient. In this case, absolute rest is counter-indicated, but on the contrary, moderate exercise, upon even and not too hard ground; or, if the lameness is great, walking exercise only, at a moderate gait. The absorption of the serosity present is made easier by a little exercise, than by absolute rest. Bleeding from the toe, or the veins of the affected legs, is also, at least, superfluous, the disease becoming chronic almost at the outset. It is also a good practice to shoe the horse, and above all, to remove the shoe frequently. The best shoeing is that which allows for the natural expansion of the hoof. The Charlier shoe has proved useful, while the bar shoe, which is heavier, and presses upon the frog, is counter-indicated. It is important to encourage the suppleness of the hoof by proper ointment, especially the application of glycerine, and to have under the feet a bedding always slightly damp and soft. The bedding of moist saw-dust is very convenient; we prefer it to poultices, and even to

the tepid alkaline baths mentioned by Hertwig. At times, at intervals of about eight days, and then during two consecutive days, a good friction with blister ointment above the coronet is advantageous, as well as one with Lebas' ointment. English practitioners prefer salines; the better treatment would be to turn the animal to grass. Brauell advises iodine internally, and says he has found it work well. Others recommend diuretics. Setons in the shoulders or chest, seem to us inexpedient. We prefer the administration of a purgative ball every eight days. Sewell and Brauell advise a seton, running from the hollow of the coronet through the plantar cushion, a little behind the tendon of the perforans, and within a short distance, therefore, of the diseased capsule, making its exit at the anterior third of the frog. This drain is to be maintained for two, three, and even four weeks; Sewell, Brauell, Hertwig, and several other veterinarians, English especially, claiming much benefit from it. This seton is introduced by means of a curved frog seton-needle; it has been used but little in France. Bruner has recently proposed the puncture of the sesamoideal capsule with a trochar, introduced in the hollow of the coronet, an operation only practicable if the serous collection can be felt outwards. After the puncture he recommends an injection of iodine.

Lafosse proposes after the removal of the sole, the transversal incision of the plantar cushion, with removal of a part of it, down to the tendon, following the axis of the sesamoid; then the cauterization of the bone and its cartilage, in imitation of what is sometimes done in punctured wounds of the foot. Brauell recommended as a useful surgical operation, the section of the perforans tendon in the metacarpal region, in order to prevent friction against the sesamoid groove, and to allow an easier adhesion between the tendon and the bone. But it is to be feared that this section, supposing that it proves successful, might so weaken the tendon as to render the animal unfit for fast work.

If navicular disease should be accompanied with deviation of the wall, and contraction, true or false, the treatment will be that of this affection in its simple form. An operation, often recommended, has been that of neurotomy, upon the posterior branches of the plantar nerves, repeated at intervals of at least fifteen

days, in order to remove the lameness wholly, without entirely depriving the foot of the sensibility of feeling. Berger, Brauell, Bouley, Gross, Mandel and others, have obtained real success by it; but it is attended with serious dangers; at any rate the benefit is not of long duration, or about one year. The animal then stumbles more readily, and is more exposed to traumatic lesions, etc., and it is probable from this cause that double neurotomy is seen to be followed by softening of the deep parts of the foot, suppuration, sloughing of the foot, while the animal has previously shown no signs of pain. Consequently, neurotomy is an operation which finds its application only in peculiar and exceptional cases, and animals thus operated upon remain fit for light work only.

(To be continued.)

EXTRACTS FROM A DAILY JOURNAL.

HORSES TREATED BY THE ENGLISH MEDICINE.

BY J. P. KLENCH, V.S.

(Continued from page 491.)

No. 29.—Horse, seven years old. Entered hospital November 29, 1862, for debility. Rest and tonics; issue favorable, December 10, 1862. Works, and returns April 1, 1863, for rheumatic lameness; issue on April 2d. Works, and returns May 24th, for chronic founder; issue pretty favorable, July 5th. Works, and comes back November 2, 1863, for suspicion of glanders. Bad gland, and bad nasal discharge. English medicine and arsenical powders. Gets the full glanders, and was destroyed December 10, 1863. Remark: Glanders on post mortem examination.

No. 142.—Stallion, ten years old. Entered March 4, 1863, for nasal catarrh. Astringent injections, seton and arsenical powders; issue favorable March 18th. Works, and returns July 28th, for bad gland on right side. Mercurial ointment; issue pretty favorable August 10th. Works, and was treated at various times for different ailments in the two forelegs, when on November 25th he had a vaginal hydropisia and suspicious symptoms of glanders. English medicine, mercurial ointment and arsenical powders. Destroyed March 14th, 1864.

No. 12.—Horse, seven years old. Entered July 10, 1863, for bronchic cough. Diaphoretics; issue favorable July 18th. Works, and returns September 19th for chronic cough and general poor appearance. English medicine; issue favorable October 1st. Works, and returns February 7, 1864, for suspicion of glanders. Arsenical powders. Destroyed March 29, 1864.

No. 32.—Horse, eleven years old. Treated at various times for distemper and nail in foot. Entered hospital on September 26, 1863, for cartilaginous quittor, with caried bone, when he fell glandered. Besides the proper treatment for quittor, he received the English medicine, but went worse and was destroyed on April 22, 1864.

No. 61.—Stallion, nine years old. Entered September 4, 1862, for general acute farcy. Arsenical powders. Destroyed September 11th.

No. 109.—Horse, ten years old. Entered July 20, 1863, for glanders. Three chancres in left nostril, a middling good gland and bad nasal discharge on same side. Arsenical powders. As nasal discharge was increasing, the sinus was trephined, and the horse received a powder containing arsenic 3i s.s.; pulv. conium maculatum 3i; pulv. sinapis nigra 3i. Horse was poisoned, and died March 11th.

No. 83.—Horse, seven years old. Entered February 25, 1863, for asthenic pneumonia. Sinapisme. A few days later a gland appears, and same powder given as to No. 109. The horse was also poisoned by arsenic, and died March 12th. Remarks: Very glandered on post mortem.

No. 89.—Horse, ten years old. Entered January 27, 1863, for old, chronic, bronchic cough. Diaphoretics with extract belladonna and phillardria aquatica. Later, the horse showed symptoms of glanders, and was destroyed March 29, 1863. Remark: Old glanders, softening of kidneys and sub-lumbar muscles.

No. 26.—Horse, nine years old. Entered October 26, 1862, for bad gland on left side. Bichromate of potasse and arsenical powders; issue favorable November 3d. Works, and returns again November 19th, for suspicion of glanders. Bad gland

and bad nasal discharge on left side. Firing of gland, trephining of inferior maxillary sinus, astringent injection and arsenical powders. Destroyed February 1, 1863. Remark: Glanders and partial gangrene of the basis of both turbinated bones.

No. 101.—Horse, ten years old. Treated on September 17, 1862, for local farcy on left hind leg. Firing and arsenical powders; issue uncertain. Somewhat suspicious yet, and put under surveillance. On December 10, 1862, symptoms of glanders appeared. Arsenical powders. Destroyed December 30, 1862.

No. 111.—Horse, eight years old. Was treated for old chronic cough from February 4th to March 10, 1863, having had pneumonia the year before. Falls suspicious on October 15th. Arsenical powders. Destroyed December 21, 1863. Remark: Glandered on post mortem examination.

No. 123.—Horse, ten years old. Entered January 14, 1863, for suspicion. Bad nasal discharge, most abundant from right nostril; bad gland on same side. Astringent injections, arsenical powders, mercurial ointment. Destroyed February 1, 1863. Remark: Old glanders. I have seen on no other horse of this company such vast, large lesions of glanders in lungs and head as on this horse.

No. 130.—Stallion, eight years old. Entered January 16, 1863, for lameness, caused by a kick on tibia, when suddenly he commenced to roar, and died from general acute farcy on February 4, 1863.

No. 132.—Mare, seven years old. Entered November 5, 1863, for hematuria and suspicion of farcy. Tonic, ferruginous, then arsenical powders, and later, phosphor oil. Destroyed January 31, 1864.

No. 137.—Horse, seven years old. Entered August 18, 1863, for incipient hydropericarditis and a phlegmonous swelling inside of hock joint. Mineral salts, tonic, diuretics. English medicine and arsenical powders; issue uncertain. September 13, 1863. Works light; the horse suffers now from chronic hydropericarditis, has no appetite, becomes weak and has a very strong beating of heart. On November 15th he showed a bad gland and a light nasal discharge, getting worse every day, and was destroyed on December 24, 1863.

No. 145.—Horse, six years old. Was cured of bronchic cough, and entered July 26, 1863, for glanders. Two bad glands, and numerous large ulcers on left side; trephining; arsenical powders; died Aug: 7, 1863. Remark: Many ulcers in nasal cavity, carbuncular condition of blood; kidneys and liver affected; nothing in lungs.

I greatly regret to have lost my notices on post-mortem examinations, as they would have been of great interest, and proven the correctness of my diagnosis in all the above cases. I can clearly remember to have found a good many horses with old, cicatrised ulcers in the nasal cavity, and will add that nearly all the glandered horses had a collection in one, two or all three sinuses of the same side.

The symptoms generally noticed first on these glandered horses, was a swollen gland; exceptionally the nasal discharge was preceding the glanding a few days.

As to the effect of the treatment described in this article, I must certainly acknowledge that it has given a very good satisfaction, when applied to the horses of this company. I never had an opportunity to try it on other horses placed in different circumstances. The main difficulty to obtain such an experience is found in the want of time, place and perseverance, which I had at my full disposition in this company, although I was never given a chance to continue the administration of arsenic to such horses as had improved so well by it, that the symptoms of glanders had entirely disappeared externally. This was due to an impossibility, or rather the unwillingness of the foreman to leave these horses at my disposition for a longer time, after they were again able to work, or at least judged to be so, although the majority of them could not stand heavy work, fatigue and change of temperature, which is sufficiently proven by the frequent and early relapses until death occurred. And indeed, is it not presumable that glandered deposits or formations which might take place in lungs, or any other viscera, require a longer time to be resorbed than nasal or cutaneous ulcers would need to heal up? And it is just after all the external symptoms have disappeared, that a continuation of arsenic would in all probability act on the glands and internal organs, and effect a more complete cure, if possible.

I never considered such horses as cured of glanders, when no more symptoms of the disease could be discovered externally; for the germ of the disease is still existing in the body, in the blood, and is liable to burst out again under the effect of a cold chill, or of a fever from any cause, traumatic, or not traumatic.

ACTINOMYKOSIS: A NEW INFECTIOUS DISEASE OF ANIMALS AND MANKIND.*

BY GEORGE FLEMING, F.R.C.V.S., ARMY VETERINARY INSPECTOR.

(From the *Veterinary Journal*.)

THE progress of pathological research is continually demonstrating the mighty part played by microscopic vegetable organisms in the production of disease in plants and animals, generally leading to their destruction, and with more or less rapidity. The feeblest and smallest, as well as the largest and most powerful, are alike exposed to the ravages of these invading, relentless foes, whose attack is all the more destructive because it nearly always cannot be detected at its onset; and their extreme minuteness and tenuity, as well as their insidious and obscure manner of operating, are also so many barriers to timely recognition and protective measures against their assaults.

The immense destruction caused by minute parasitic fungi upon cereal and other useful plants, is only too often experienced by agriculturists and others. The mildew of the wheat, for instance, arises from the attack of a small fungus—the *Puccinia graminis*. When this little pest becomes multiplied to a great extent, it gives rise to most serious consequences. The disease called “Smut,” attacking the flower of the wheat, is the produce of a minute parasite—the *Uredo segetum*; while the “Bunt,” or disease involving the seed itself, is caused by another parasitic microscopical fungus—the *Uredo foetida*—which, as soon as it enters the grain, completely fills it, and replaces the flour by a black, dis-

*A portion of this paper was read, and morbid specimens, drawings, and microscopical preparations exhibited, at the meeting of the Southern Counties Veterinary Medical Association, on October 30th, 1882.

gusting, fetid powder, consisting of minute balls, four millions of which may exist in a single grain. The disease which attacks rye and other grain, called "Ergot" or "Cock's-spur," is produced by a like minute fungus—the *Spermaedia clavus*; that attacking the potato—the *Botrytis infestus*; that destroying the different species of *Allium*, as the onion—*Botrytis destructor*; and many other destroying fungi, whose existence in plants can only be realized by their ravages, and their presence by means of the microscope, are known to those who have made them a special study.

The lowest, as well as the highest animals, are similarly the victims of these almost impalpable organisms. There is not a creature, probably, which may not afford scope for their baneful action. The disease called "Muscardine," in the silkworm, is produced by the "balsoma" or *Botrytis Bassiana*, and several species of caterpillars are affected in the same way; indeed, some of these fungi of caterpillars completely transform the bodies of these into their own substance. Then we have the fungi which grow upon or within the bodies of man and wild and domesticated animals, and cause troublesome, very often serious, and only too frequently fatal disorders. The wonderful revelations which have been made by means of the microscope, lead us to believe that those diseases which are included in the group designated "zymotic," owe their production to vegetable germs; and other maladies not comprised in this class have already been discovered to be due to these microphytes—for instance, anthrax, tuberculosis, swine-plague, rabies, fowl-cholera, leprosy, etc.

Yearly the list of diseases evidently due to *microbes*, or "germs"—as they are commonly designated—is added to; and whether these germs consist of simple forms, such as special *micrococci* or *pacilli*, or more complex organisms, yet by culture and inoculation-experiments their part in the pathogenesis of certain maladies, can be no longer doubted.

Whether these fungi invade plants or animals—whether they attack the simplest or the most complex organizations—the tendency of their action is always the same—degeneration and disintegration.

The object of this paper is to bring to notice another addition

to the list of microphytes which prove to be veritable scourges to animals, and are productive of loss to the community.

For the last two years, the pages of the *Veterinary Journal* have been more or less occupied with the descriptions and discussion of a disease chiefly affecting bovine animals, more particularly those of a juvenile age, and which has been by the majority of writers designated "Tubercular Stomatitis," evidently from the character of the lesions and its chiefly affecting the mouth; while by a few it has received other designations, and its tubercular nature has been denied.

The same malady has received some attention at other times among veterinary surgeons in this country, but nothing has been published as to its pathology.*

Though it is probable that two or more diseases have been included in this discussion, yet with regard to that which received the before-mentioned designation, there were some veterinary surgeons—myself included—who, for several reasons, were inclined to doubt its being allied to, or identical with, tuberculosis; and as the question was one of some importance, from a sanitary and pathological point of view, an attempt was made to decide it by appealing to those practitioners who had the opportunity, to forward specimens of the disease to the Brown Institution for examination.

Several members of the profession obligingly complied with the request; but the only specimen which arrived in a satisfactory condition was the tongue of a steer forwarded in May last, by Mr. James, M.R.C.V.S., Thornbury, Gloucestershire. The animal from which the organ had been obtained was, as Mr. James subsequently informed me, one of five affected with this so-called tubercular stomatitis, the others having been successfully sub-

*There are a few notes on what may have been this malady, by Professor Axe, in the *Veterinarian* for 1877, pp. 605, 759, but they are merely quotations, and throw no light whatever on the disease. Up to the present time, the views entertained with regard to it are fairly represented in the opinion of the late Professor of Cattle Pathology at the Royal Veterinary College, who, in the course of some remarks on what would appear to have been a case of this affection, and which was designated "Schirrus Tongue," states that "the causes of schirrus are obscure, but they are evidently of a *constitutional nature*, as the disease is generally insidious in its attack, gradual in its development, and fatal in its consequences."

mitted to surgical treatment. The steer had not received much attention—the tongue having only been dressed a few times—as it was a two year old animal, and the owner thought he would rather have it slaughtered before it lost condition.

The tongue was in good preservation when it reached the Brown Institution, and when I saw it an examination had been made of it by Dr. Roy, director of, and Mr. Garside, M.R.C.V.S., then veterinary surgeon to, that valuable establishment. The appearance of the organ was somewhat curious and very unusual, and it was evident—almost at a glance—that it was affected with something very different to tuberculosis. In the first place, it appeared to be considerably increased in size, and in texture it was very dense; indeed the term rigid might have been appropriately applied to it. A transverse section through its middle third exhibited the muscular tissue pale in color, its fibres indistinct, and looking as if undergoing degeneration; while interspersed closely throughout the entire mass were myriads of small, light yellow, dense nodules, rather firm in consistence, for the most part perfectly distinct from each other, and varying in size from the dimensions of a pin's head to that of a millet seed or filbert. Here and there two or more of these nodules had evidently coalesced to form larger masses, and the section already mentioned had been made through a somewhat extensive patch, which looked as if in process of softening, and the tissues immediately surrounding it were ulcerating. This softening mass, which was somewhat caseous, might have been mistaken for tuberculous deposit; but to those who are familiar with the lesions of tuberculosis, it would have been scarcely possible to make such a mistake in this instance, after a careful inspection of sections in different parts of the organ.

Mr. Garside had made the following notes in regard to it;

“The tongue weighed eleven pounds (5994 grammes). About seven inches from the tip it becomes suddenly enlarged. The enlargement extends to the fauces, and is hard and firm to the touch, resembling cartilage in consistence. Length 8 inches, depth 5 inches. The surface shows variously-sized ulcerations, not very deep, and looking as if punched out. In some parts the

mucous membrane is purple in color, mottled by the presence of still darker spots, which look like blood extravasations. The thickening does not feel nodular, but uniform; and it is evident that the mucous membrane is thickened by infiltration of the submucous tissue. On making a longitudinal section of the enlargement, it is seen to be pale in color, inclining to a yellowish-red. Scattered throughout are a number of nodules, varying in size from that of a pin's head to a hazel nut. Some are isolated, others in groups of two and three. They project above the cut surface. They are white in color, and their margins are generally well-defined. In some instances they are surrounded by a capsule of connective tissue. Although present throughout the whole of the section, they are far more numerous towards the surface of the tongue, being contained within a zone of an inch and a half from the surface. They are of all shapes, but the smaller ones are mostly round. The nodules are also contained in the submucous tissues.

"In addition to these projecting nodules, are a number of variously-sized white patches, generally streaky, which look like hypertrophied intermuscular connective tissue. The nodules are also scattered throughout the muscular tissue. On the under surface of the tip of the tongue, there is seen through the mucous membrane a patch made up of yellowish nodules."

Mr. Garside's microscopical examination of the nodules at first led him to consider them crystals—a mistake easily made.

If the disease affecting this tongue was not tuberculosis, then the question arose, What was it? Mr. James, who had sent the specimen, had in his communications to the *Veterinary Journal*, spoken of it as a somewhat common, and certainly a very serious malady in his district, among calves and young bovine stock, though adult animals did not escape its ravages. It was, therefore, of great moment to discover its nature.

As I have already said, Mr. Garside, from the density of the nodules, at first thought they were crystals, and calcareous in composition, and accordingly tested them with acids, but he concluded they were not composed of lime salts.

With much care, and after the exercise of a considerable

amount of patience, it was subsequently found by Dr. Roy and Mr. Garside that the nodules were found to offer a definite structure under the microscope, and when the higher magnifying powers of the instrument were employed, the presence of a peculiar minute fungus was detected, the mycelium developing, or being arranged in, a novel manner, each nodule being mainly constituted by a cluster or conglomeration of fungi or fungus elements, differing in arrangement and appearance from anything hitherto noted among entophytes infesting animals.

This was recognised as the *Actinomyces*, a fungus which has been discovered in certain morbid conditions of mankind and animals in Germany and Italy.

It now dawned upon me that we had to do with a particular disease, the pathology of which has only been elucidated within a few years, and which is referred to in the *Veterinary Journal* for January (p. 60, "Sarcoma in Oxen") and April (p. 256, "A New Vegetable Parasite causing Disease in Cattle"), 1879.

Mr. James has quite recently, at my earnest solicitation, forwarded three additional specimens of the disease—portions of two heads, and a tongue. I shall notice the former first, as they are the most interesting and important, and give the clinical history of the cases, for which I am also indebted to Mr. James. The specimens were two bovines—a steer and a heifer—each about a year and a half old. The heifer was first attacked about three months before. The symptoms were: swelling of the upper lip and nose, and the appearance of a "red place" about two or three inches from the anterior nares—this place resembling a *boil* on the human skin. Some dressing was sent, and this was applied two or three times a week. Mr. James did not see the animal again for two or three weeks, when he was requested to inspect it again, as it was very much worse. He found the upper lip much more tumefied and very hard, and the disease extending up the nasal chambers, the little masses or "tubercles" being very characteristic. On his next visit he observed that the disorder had been checked, and it was kept in this condition for about a month. It then began to extend again, and all efforts to overcome it were fruitless. Dressings appeared to have no effect on it, and there

was great difficulty experienced in properly syringing the nasal cavities. From this time the malady continued to gain ground, the growths developing so rapidly as almost to fill the nostrils. The animal was greatly distressed in breathing, throwing up its nose, and snorting and roaring in its efforts to respire. It was destroyed. Neither mouth nor tongue was involved in this case.

A few weeks after the heifer became affected, the farmer requested Mr. James to see a steer as quickly as possible, as it had the same disease, and he was afraid his other stock would be involved, particularly the milch cows, in the "distemper." On examination, Mr. James discovered the roof of the mouth to be the seat of the malady, the greater part of it being "abraded." The nose did not appear to be implicated then, nor for some time afterwards. The disease yielded to treatment, and rapid progress was made towards recovery. But soon it attacked the upper lip and nose, precisely as in the other case, though not so seriously. This animal was killed at the same time as the heifer, the owner being afraid his cows would catch it.

These animals, with several more, had been sent away from the home farm to graze on some poor undrained land. The specimens, when they arrived in London, were found to have been much mutilated by the butcher. The nasal bones had been removed from one head, and only the superior maxilla, premaxilla, turbinated, ethmoid, and palatine bones remained. The mucous membrane lining the nasal fossæ and covering the turbinated bones, was studded by various-sized, light-yellow, isolated little masses, like warts or small raspberries in outline. During life these nodular-looking bodies must have greatly obstructed the breathing. The only portions of the other head sent for inspection were the nose and the upper lip. The latter was much thickened and indurated, and small shot-like masses could be felt through the mucous membrane lining it.

The tongue specimen was from a two-year old steer. The anterior part of the organ, to an extent of five or six inches, was extremely indurated, and numbers of the yellow nodules, small in size, were scattered through the submucous and muscular tissues. This case was a very mild one of the disease.

A microscopical examination of the nodules from the mucous membrane of the nose, by Mr. Batt, M.R.C.V.S., of the Brown Institution, revealed the existence of myriads of the vegetable organism designated *Actinomyces*, each nodule or mass being made up of a number of smaller nodules, these individually containing nests of felted fungi. Each cluster of the *Actinomyces* had the characteristic daisy-like outline and radiating lines springing from a somewhat dark centre, which will be hereafter alluded to, and which was such a marked feature in the specimens found in the first-described tongue.

These specimens, then, exhibited the same characteristic fungus elements and pathological features as the tongue, and leave no doubt whatever as to the nature of the malady which is reported to be so widely prevalent in Gloucestershire, and, from report, in other parts of England, as well as in Scotland and Ireland, and prove its non-identity with tuberculosis.

The great importance and interest which attaches to this disease, have, therefore, induced me to bring it to the notice of the veterinary and medical professions in this country, as its nature has not hitherto been suspected, though by various names it has probably been known as a destructive disorder among cattle and other animals from time immemorial; and though its presence has not hitherto been signalized in our own species in these islands, yet that it may not unfrequently occur there is every reason to believe, when we now know how prevalent it is among our cattle, and that cases affecting mankind have been recorded in Continental medical literature.

HISTORY.

As already stated, so far as the pathology of this malady is concerned, it is a new disease, as until its histological characters were discovered, we were in ignorance of its nature. For a very long period, and especially in Germany, it had been observed that the ox tribe was affected with a certain disease, or diseases, of the bones and soft tissues of the head, which received various popular names by agriculturists and dairy people, whose cattle were so frequently victims to it. In Germany the disease of the bones

was known as "Ladendruck," "Ladengeschwulst," "Dickerbacken," "Krebsbacken," "Bäckel," "Kimbeule," "Kiefergeschwulst," "Knochenkrebs," "Knockenwurm," "Winddorn," etc.; while when the tongue or other soft tissues in the mouth were specially involved, the terms "Holzzunge" (wooden tongue), "Hohlgeschwulste," "Schlundbeulen," "Wurm," etc., were applied.

Among veterinarians in Germany, the disease of the bones was looked upon as osteosarcoma, spina ventosa, bone tuberculosis, osteoporosis, hyperostosis, etc., while the tongue affection was supposed to be tuberculosis, chronic interstitial glossitis, tongue degeneration, sarcomatosis, etc., the affection in other soft tissues being considered either as lymphomatous, fibromatous, scrofulous, or scrofulo-tuberculous.

In Italy, where the disease appears to be very prevalent, especially in the plains of Ferrara and in the Maremma of Tuscany, it was popularly considered to be a kind of glanders and farcy of bovines, sometimes looked upon as tuberculous, and when affecting the tongue was named the *mal del rospo* (*rospo*—toad), *trutta* (thrush), or tuberculosis of the tongue.

In this country, as already remarked, the disease undoubtedly exists, and in all probability widely and frequently; though its pathology has not hitherto been ascertained. Under the designation of scrofula, tuberculosis, tubercular stomatitis, miliary tubercle, schirrus tongue, glossitis, osteosarcoma, osteoporosis, and many other names, there is every reason to think that this disease has been included in the descriptions of these various affections.

In 1877, Bollinger* drew attention to a disease of cattle which, he asserted, was not unfrequent among them, and which consisted in a kind of new-formation tumor, that appeared on the upper or lower jaw, in the alveoli of the molar teeth, or sprang from the spongy tissue of the bones, displaced the teeth, and in growing invaded and destroyed the healthy tissues—bones, muscles, mucous membrane and skin, appearing externally, or in

*References will be found at the end of this paper, when treating of the literature of the subject.

the mouth or palatine sinus. The bones, when macerated, looked like pumice-stone, modified through central osteoporosis and external hyperostosis. After some time the round, conglomerate, luxuriant growths generally became puriform or ichorous, and ulcerated, producing abscesses and fistulæ, and sometimes increased to the size of a child's head. The progress of the disease was gradual, and interfered with mastication when it had advanced to a certain stage; this led to emaciation, and to prevent loss from this cause the owners of the cattle generally had them destroyed before this stage was reached. In examining fresh tumors, Bollinger discovered (in three cases) amongst the dense connective tissue, conglomerate masses or nodules of various sizes, from that of a walnut to a hen's egg, of soft consistence, pale yellow color, and moist appearance, which on section showed a turbid, whitish-yellow puriform contents; or the nodules were of a spongy texture, in the fine stroma of which were numerous spaces about the dimensions of a hemp-seed, containing a dull-yellow, thick, or cheesy-like substance. In scraping a section of an old or young nodule, this substance was easily removed. Microscopically, the tumors appeared to be composed for the greater part of old or embryo granulation tissue, which had a kind of sarcomatous structure, while the cheesy substance consisted of pus-corpuscles, granulation and granular cells, as well as fatty granular *detritus*; in addition, the latter contained innumerable, various-sized bodies, which were opaque, of a faint yellow tint, often somewhat mulberry shaped in outline, and here and there encrusted with lime salts. This was recognised as a real fungus, but at first no pathological importance was attached to its presence, and the disease was simply named "jaw-osteosarcoma."

Besides this noteworthy form, which appeared to have its origin in the invasion of the alveoli by the fungus, the tongue of the ox presented another form, proper to itself. Imbedded in the parenchyma of the organ, Bollinger found a greater or lesser number of nodular-looking bodies, the majority of which were as large as a millet or hemp-seed, and some as big as a cherry or walnut; many stood prominently from the surface of the mucous membrane. When fresh, they were mostly white or greyish-

white, diaphanous, moist-looking, very soon becoming turbid or undergoing puriform softening, and vacating their connective tissue capsule. When these nodules were on the upper surface of the tongue, destruction of the mucous membrane, erosion, ulceration and cicatrization took place; while in the parenchyma of the tongue, a secondary interstitial glossitis became developed, when there was partial atrophy of the muscular fasciculi, and a marked enlargement and wood-like induration of the organ.

The disease, when in the jaws, was not uncommon in old cattle, developing itself in a few weeks, and was nearly always incurable; the animals would survive for a month, or even a year, until the difficulty of eating, because of the diseased jaw or enlarged tongue, produced emaciation and debility, and the animal was slaughtered. In the nodules of the tongue, as in the jaw, the microscopical fungus was constantly present.* That the tongue disease was not rare, was evidenced by the fact that in one year Bollinger had no fewer than six specimens sent to him from various parts of Bavaria; while in five preparations he had in spirit, he found the fungus. He not only discovered this fungus in the centre of the nodules, but also in the sub-maxillary lymphatic glands of the tongue, as well as in the tracheal lymphatic glands. He found these glands greatly enlarged, and studded with grey and dull-yellowish spongy nodules, in the interior of which he found immense numbers of the fungus. The fungus was likewise discovered in a series of new-formation tumors which cows are very liable to, in the pharynx and larynx, as well as in the mucous membrane of the stomach. In the two former situations, these tumors appear as polypi and sub-mucous new formations, and these had received such names as lymphoma, throat-tumor, fibroma, tuberculosis, scrofula, etc.† In all these tumors (ten of which he had preserved in spirits of wine), the section was always more or less of a spongy character, and when the puriform or cheesy matter contained in the numerous small

*These organisms had been observed for several years (1870) by Professor Hahn, of the Munich Veterinary School, but he had not attached sufficient importance to them.

†Bollinger notes that in some parts of North Germany, five per cent. of the cattle are affected with these throat tumors.

inter-spaces of their structure was examined microscopically, enormous quantities of the same endophyte were found as had been discovered in the jaw tumors and the so-called "wooden-tongue."

Besides all these, in the tumors of cattle which the German farmers and dairymen named "throat-boils" (*schlundbeulen*), and which appear in the vicinity of the parotid gland, larynx, and pharynx, and apparently have some relationship to the jaw tumors, the same nodules and organisms are found; they may be derived from the lymphatic glands in their neighborhood. In a case of supposed fibroid in the second compartment of a cow's stomach, the tumor being about the size of a man's fist and of a spongy nature, the fungus was found by Bollinger; as well as at the base of a gastric ulcer which was mistakenly supposed to be of a tuberculous character.

In fixing upon this endophyte as the cause of the disease, through its destructive nature, and its tendency to produce new-formation growths (in this respect resembling the *Chionophye Carteri*, which causes the "madura-foot" of the natives of India), Bollinger makes some remarks on the fungus, which had been carefully studied by the professor of botany at the Munich Veterinary School, Dr. Harz, who obtained it from fresh specimens. The fungus found in the tumors from cattle form globular drussy tufts, from 0.11 millimetre in diameter. The majority of these tufts are aggregated in mulberry-shaped masses of from 0.5 to 1 millimeter in diameter, and appear to the unaided eye as very minute dull-white granules. Very frequently the tufts are somewhat calcareous, and then it is difficult to make out their composition; it is the same when they have become altered by lying for some time in alcohol. By a slight pressure made upon it, the fungus tuft is considerably altered in appearance, and mostly assumes the shape of a spheroidal segment, wherein some of the organisms can be distinctly traced throughout. The latter commence at the pointed end of the mass, with a somewhat cone-shaped base-cell, which may possibly represent the non-apparent mycelium, and which bears a large number of short-stalked hyphens. The end of the hyphen shows the Gonidiæ, which are,

like the hyphen itself, polymorphous, and of an oval, globular or elongated form. From the expanded end of the Gonidiæ are developed a number of young shoots or sprigs, and from each Gonidium arises an individual; so that a number of Gonidiæ together give rise to a mulberry-shaped colony; and this is the usual form in which the clusters of fungi appear, though sometimes here and there are found apparently stunted or abortive groups.

The fungus, in fact, is allied in many respects to the common green mould (*Penicillium glaucum*) which grows on jam, paste, damp leather, etc., and is therefore very far from being one of the lowest of the group to which it belongs. The individual plant, in reality, consists of a conical mass of branched filaments springing from a single cell, and bearing on their short terminal branchlets the spores or *Conidia*, by which the mould is produced.

From the radiating structure of this micro-entophyte, and its being found at first in the ox tribe, it was named *Actinomyces* (a ray, a mushroom or fungus) *bovis*. This, Bollinger asserted, was the first instance in which a fungus belonging to the class of moulds had been found in the interior of animal tissues, such as the bones. The designation of actinomykosis (mykosis, a fungus) was given to the disease, following the example of previous pathologists—such as Alibert, who applied the term mykosis to the affection in mankind known as *Frambæsia* (the *Molluscum contagiosum*, for instance, due to a vegetable parasite, and which he designated *Mycosis fungoides*).

Zippelius of Obernburg (Lower Franconia) informed Bollinger that, in the course of ten years, he had noted not fewer than 254 cases of lymphoma in the vicinity of the larynx and pharynx, in addition to 157 cases of jaw tumors in cattle: and Bollinger was of opinion that the majority of the first, and probably all of the second, were due to this fungus. Zippelius had also seen both forms of the disease in goats and swine, though much seldomer than in cattle. Veterinary literature also contained a number of cases of these tumors in goats and oxen; and Bollinger suspected that they would likewise be found to exist in sheep and other animals.

In other parts of Franconia, Professor Franck has found the tumors in the region of the throat so common, that among cattle owners, whenever an animal began to lose condition, it was said to have a "growth" (*gewächs*) in its throat. Even while Bollinger was writing his paper on the disease, he received a tumor from a veterinary surgeon in Pfalz, which was as large as a fist, and which he had removed from the pharynx of a two-year bull.

For some time previously the animal could not eat, appeared to suffer great pain, coughed, and so rapidly lost condition that it had to be slaughtered. In the pharyngeal cavity this tumor was found just above the larynx. It was spongy in texture, and in the meshes of the fibrous framework was a puriform fluid containing the characteristic fungus in immense quantity. The spongy character of this granulation-tumor was so marked, that the unaided eye might have discovered its mykotic origin.

Bollinger's observations attracted much attention on the Continent, as I have already stated. I gave a brief abstract of them in the *Veterinary Journal* for 1879 (Vol. VIII.. p. 256), with the view of discovering whether the disease had been noticed in this country.

Their publication in Italy elicited the fact that Professor Rivolta, of the Turin Veterinary School, had already published a paper in the *Veterinary Journal* of that city, so long ago as 1868, on a sarcomato-fibrous tumor on the lower jaw of an ox; and after that date, in 1875, Professor Perroncito, of the Turin Veterinary School, had an article in the "Enciclopedia Agraria Italiana," on "The osteosarcomata of the upper or lower jaws of cattle," in which he describes, among other microscopical objects found in the round and giant-cell sarcomata, cryptogamic bodies in conglomerations, which were made more distinctly visible by treating them with dilute hydrochloric acid, which dissolved the lime salts surrounding them. According to Israel, Langenbeck, the famous German surgeon, had, years previously, described and delineated the fungus, which he found in the pus from a deep-seated vertebral abscess in a man in the hospital at Kiel; but some doubt is thrown upon the correctness of this statement.

In 1875, Rivolta undoubtedly described the structure of the

nodules very accurately, and pointed out that the vegetable organisms were not crystals, but minute fungi, which were not soluble in water, alcohol, solutions of potass, or sulphuric or hydrochloric acids, etc.: the nodules were, in fact, discoid tufts (*cespugli discoidi*), composed of branching rods; these tufts were of unequal volume, and the nodules were the size of a poppy-seed.

In 1878, Siedamgrotzky, of the Dresden Veterinary School, furnished conclusive evidence of the correctness of Bollinger's descriptions and conclusions. In multiple sarcomata from the mucous-membrane of the pharynx of oxen, as well as a tumor from the lower jaw of a cow, obtained fresh, he found the *Actinomyces* described by Bollinger; but he was unsuccessful in cultivating it, or inoculating animals with it. In the same year, Israel published a case of what he designated "Chronic Pyæmia," occurring in man, in which the fungus was found, and its identity with that of the bovine species was subsequently established.

After this date, several German and Italian veterinarians record observations, all more or less interesting; while sixteen cases are reported by medical men in Germany. These I shall again refer to. In the meantime I will briefly sketch the symptoms of the disease, and mention the different situations and animals in which it has hitherto been observed.

Actinomykosis of the Tongue.

I have already stated that in this country, when the disease is present in the tongue, it is supposed to be schirrus, induration, glossitis, tuberculosis, cancer, etc.* Doubtless, all these morbid

*For instance, in "Steel's Diseases of the Ox" (p. 234), in treating of cancer of the tongue, it is stated: "In this disease the organ is the seat of small nodules of carcinomatous deposit, which more or less replace the proper substance of the organ, and some of them bulge beneath the mucous membrane of the dorsum. Some undergo softening, and the submaxillary and parotid lymphatic glands are generally involved through absorption of cancerous matter. This disease progresses slowly, and materially interferes with the development of the animal. It is incurable, and the flesh of cattle thus affected is not good meat, though always consumed. . . . Some authorities consider this disease scrofulous rather than a form of carcinoma."

states may exist without the presence of the *Actinomyces*, but I think I may be pardoned, from the specimens forwarded from Gloucestershire and the cases reported, if I ascribe the majority of the instances which occur of disease in the tongue to this microphyte. In South Germany, where interstitial glossitis or induration is very frequently reported, nearly all those examined have proved to be cases of actinomykosis. I have no doubt whatever that it is the same in this country. Take, for instance, the description given by Captain Russel, F.R.C.V.S., and we shall find actinomykosis of the tongue graphically delineated.

He writes, when treating of induration of the tongue in the ox—a disease very common in his practice in Lincolnshire: “I have observed that the disease commences with small patches of a yellow color, associated with thickening of the mucous membrane, sometimes on the dorsal surface, sometimes on the tip, and at others underneath the tongue, or on one or other of its sides. This thickening, in the course of a short time, breaks up into a number of small pimple-like excrescences, which soon become confluent. As the disease spreads, a cheesy deposit is thrown off, leaving a very red and angry-looking surface. Subsequently, the organ becomes hard and swollen, and eventually hangs from the mouth perfectly useless. The animal quickly loses the power of prehension and deglutition, and if not destroyed, usually succumbs to inanition. I do not find that either constitutional or local treatment is of any avail. Four years ago my attention was called to several cases, and this season I have seen as many as twenty. The progress of the malady is generally slow, the increase in size of the tongue being gradual; but as it progresses movement of the organ is diminished, and mastication is performed with corresponding difficulty. There are rarely any indications of severe inflammation noted, and this fact should differentiate the disease from glossitis, as should also the absence of the acute pain which marks the latter. Discoloration may be present here and there; indeed, this usually precedes ulceration.”

(*To be continued.*)

OPERATION FOR OSCHEOCELE.

BY H. F. JAMES—Student Ontario Veterinary College.

The other day I noticed in an American exchange, an article explaining the method of operating for scrotal hernia, and recommending what is usually known as the covered operation, viz., cutting through the scrotum, severing its connection with the tunica vaginalis, and placing the clamp on the cord, including, of course, the vaginal tunic. From the experience and teaching of Professor Smith, and my own slight acquaintance with the operation, I am of opinion that this method might be dispensed with in a great many instances, and would prefer the simpler procedure of returning the intestine, and enclosing scrotum and all under a clamp, this being placed as close to the ring as possible. Prof. Smith has repeatedly operated in this manner, with the happiest results. In one case, a stallion, the hernia was of great size, extending down two-thirds of the way to the hock. This animal was fed sparingly for a few days in order to relieve the intestines as much as possible. He was then cast and secured, and the bowels being returned to the abdominal cavity by careful manipulation, a 16-inch wooden clamp was placed close to the ring, including scrotum and cord. Scarcely any constitutional symptoms were shown. In a short time the parts sloughed off, and a perfect recovery was the result. In this case, especially, Professor Smith feels convinced that the covered operation would have been attended with unfavorable results. About the beginning of December, a grey draught gelding, five years old, was admitted to the hospital of the Ontario Veterinary College, with the object of being treated for bilateral scrotal hernia of some standing, and on the 10th of December he was brought out for operation, cast, and firmly secured. Professor Smith then proceeded, by manipulating the scrotum, to break down any adhesion which might have taken place, reducing the hernia, and applying a 10-inch plain wooden clamp on each side, further strengthening by putting a metallic skewer, secured by a figure 8 ligature, through the skin immediately below each clamp. One hour after the operation, he showed some little

uneasiness, but was relieved by a hypodermic injection of three grains of morphia. The only other medicinal treatment he received was a laxative dose of oil about a week after the operation. Slight phymosis was noticed one morning, which quickly yielded to moderate scarification, and the use of fomentations. The constitutional symptoms exhibited were very slight throughout. Temperature ranged from 99° to 103°, and pulse hardly varied from the normal. On the 28th of December, the included portions of scrotum sloughed off, leaving a healthy granulating surface, which has since entirely healed, and at date of writing, recovery is complete. The comparative rarity of scrotal hernia in the gelding renders this case somewhat interesting. Judging, therefore, from the success which attends this method of procedure, and the advantage it presents over the other mode of operation, inasmuch as it is more easily performed, and no cutting is required, thus avoiding the introduction of atmospheric germs, and other sources of irritation to the delicate structures of these parts; I would advise its substitution in the majority of cases, for the old covered operation, which, no matter how well or carefully performed, is followed in many instances by fatal results.

CLINICAL CHRONICLES.

BY A. LIAUTARD.

The peculiar weather which has lately prevailed over the United States has brought back amongst horses a form of disease with which many veterinary surgeons are familiar, *viz.*, cerebrospinal meningitis. Generally appearing in damp seasons, this disease assumes, at times, an epizootic form, which baffles the skill of the practitioner. As numerous cases have already made their appearance in this city, and though thus far of limited prevalence, and as it betrays a tendency to resume the form by which it was characterized several years ago, we have thought a reprint of part of an appendix to the book of Stonehenge on the Horse, published by G. Routledge, of London, written by Prof. A. Large, M.D., then Professor of Theory and Practice in the New

York College of Veterinary Surgeons (in 1869), would prove to be interesting, but little having ever been written on the subject, and especially upon the prophylactic treatment, which has proved so successful in Dr. Large's hands, as well as in our own practice. The account of a fatal case which was observed in the hospital of the American Veterinary College is also given, from the pen of House Surgeon Fred. Saunders, D.V.S., who took charge of the patient in connection with Mr. C. Evans, Student.

CEREBRO-SPINAL MENINGITIS.

BY F. SAUNDERS, D.V.S., *House Surgeon.*

On the 9th of December, a bay gelding, eight years old, used for road purposes, was admitted to the hospital of the American Veterinary College, with the following history: On the previous Tuesday he was driven about five miles, doing his work apparently as well as usual. In the evening he refused his food, and supposing him to be suffering with sore throat, some stimulating liniment was applied to his neck by the foreman of the stable. On the next day, he left his breakfast, and refused to drink, and was left alone until Saturday, when medical aid was sent for. When first seen he was found in the above condition, temperature, 101° ; pulse, 80; respiration, 18. On account of the state of the patient, and the prospect of a fatal termination, it was advised to send him to the hospital before the disease had sufficiently progressed to preclude his removal.

When he arrived there he was placed in a box stall, and after a little time, I examined him. His temperature had risen to 104° ; pulse, 90; respiration, 20. There was an abundant foaming discharge from both nostrils, quite offensive. A pail of water being placed before him, he would endeavor to drink, putting his nose into the pail, and trying to swallow, but without any result. Measurement was taken of the water before and after it had been left before him for some time, and it remained the same in quantity in both cases. On introducing the hand back into the mouth, the soft palate was found flabby, and the hand dropping into the pharynx did not give rise to any contraction of that organ. The throat was somewhat painful upon pressure. On examination of

the eyes with the ophthalmoscope, the pupils were found dilated, and the fundus of the eye highly congested by the choroid vessels, especially that of the right eye, the smaller arteries being easily traced out.

In view of these symptoms, the difficulty of deglutition, and principally, of the condition of the eyes, I made a diagnosis of cerebro-spinal meningitis. This was the third case which I had recently met with in my out-door practice.

A severe blister was applied over the throat, and a hypodermic injection of strychnine and atropin given every six hours.

At 12 m. the temperature had fallen to 101° ; the pulse had risen to 120; the respiration to 30—he is in the same condition.

On the morning of the 10th there was no change, excepting that he seemed to be partially blind. The same treatment was followed—he was fed by rectum during the day. In the evening of that day he becomes very uneasy and delirious. At 8 A. M. he went down to rise no more, his pulse becoming faint and scarcely perceptible, and the breathing stertorous. At 9 A. M. he died, after passing into a comatose condition.

Post mortem, made the next morning, the head and the brain being the principal parts examined: The encephalic mass weighed $28\frac{1}{2}$ ounces, and was much softened and congested. The pituitary gland was blackened and the meninges highly congested, with effusion under the arachnoid spaces, as well as in all the ventricles. The choroid plexus was also congested; the hippocampi seem apparently enlarged, black and softened. The corpus callosum was quite soft, the cervical portion of the spinal cord very much injected, and the sub-arachnoid space filled with serosity. The examination of the throat showed a small collection of pus at the base of the epiglottic cartilage. The fauces and the pharyngeal mucous membrane were of a very dark color and gangrenous appearance. The other organs were apparently healthy.

In his excellent little work on "Tumors of the Bladder," Prof. Stein publishes statistics, showing the rarity of cancerous growths of that organ in human subjects. In our investigations in

veterinary literature we fail to discover the reports of more than a few cases, which however, scarcely prove that they are not as rare in animals. That they may exist and have been observed, is an evident fact, and it is to assist in the investigation of others, and to record an interesting case of comparative pathology, that the following case is published, incomplete as it is.

CARCINOMA OF THE BLADDER.

BY J. KEMP, JR., D.V.S., House Surgeon.

During last summer there was admitted to the hospital a gray gelding, 14 years old, 15½ hands high, with the history that he had great difficulty in urinating, and exhibited symptoms of pain during the act. Small quantities of urine were frequently voided, after considerable straining on the part of the animal. It was also noticed that the urine was bloody, sometimes of a bright red color, at others intermixed with streaks of grayish matter. The horse had always fed well, and had done his work regularly up to within a few days of his admission to the hospital. At this time he presented the appearance of an aged animal, in a somewhat anæmic condition—*i. e.*, he moved about in a dull, listless manner; temperature normal; pulse weak; mucous membrane pale and of a slightly yellowish tint. The animal did not seem to suffer any pain, and a casual observer would notice nothing but the frequent attempts at micturition and the dark colored urine.

Upon rectal examination, the bladder was found to be two-thirds full. At the fundus it presented the normal fluctuating condition, but toward the neck became hard and dense, at first giving an impression that it was filled with a firm, resisting substance. This was especially noticeable in the neck. At the quadrifurcation of the posterior aorta, on the right side, could be felt two hard, resisting tumors, each about the size of a pigeon's egg. Numerous tumors, of the same size and consistency, could be felt suspended from the mesentery, and on the lateral surfaces of the pelvic cavity. It was just possible to reach the right kidney, which seemed very tender on pressure, though no enlargement was made out. With a view of ascertaining where the blood came from, an attempt was made to wash out the bladder. A

catheter was introduced, and about six ounces of coffee-colored urine escaped, when it ceased to run. Upon removal, the catheter was found to be obstructed by coagulated blood and concretions of muco-purulent matter. Twelve ounces of tepid water were injected into the bladder, very little of which could be removed, owing to repeated obstruction of the catheter. The little that was removed had a very foetid odor.

It was decided to explore the bladder, and, with this in view, the operation of urethrotomy was performed. The horse was placed in a standing position in the stocks, and a flexible catheter was introduced. An incision was then made in the perinæum on the median line into the urethra. The catheter was then removed, and by digital exploration the obstruction could be distinctly felt. The urethral canal, in its membranous portion, had been so narrowed as to scarcely admit the little finger. The endoscope showed it to be completely obstructed at its prostatic portion, not alone by the new growth from its walls, but by the mass of floating substance within the bladder.

A diagnosis having been made of carcinomatous growth, involving the mucous lining of the bladder and urethra, it was decided to destroy the animal, which was done on the following day. In the post mortem great care was taken to remove the urinary apparatus complete. The penis was dissected back, the floor of the pelvis sawn through and removed, and the kidneys, ureters, bladder and urethra were removed intact. Several small tumors found on the mesentery and posterior aorta were reserved for microscopic examination.

The left kidney was slightly enlarged, weighing twenty-six ounces. Its capsule was readily removed, and externally it presented a normal appearance. When cut, it was found to be somewhat softened.

The right kidney was very much enlarged, weighing ninety-four ounces. Its capsule was so closely adherent as to render its removal impossible. When cut into, it was found to be much softened, pale in color, especially round the pelvis, where it was partly broken down. The ureter was enormously distended with muco-purulent urine, of a gelatinous consistency, which also com-

pletely filled the pelvis, and could readily be pressed from the uriniferous tubes. The ureter of the right side measured three inches in circumference, while that of the left was normal in appearance.

The bladder was found to be two-thirds full. When opened by a longitudinal incision, it was found that a cancerous growth had involved the posterior two-thirds of the bladder, completely obstructing the orifice of the right ureter, and very nearly that of the urethra. The new growth seemed to be arranged in longitudinal rugæ, and was highly vascular in appearance. There was very little fluid in the bladder, it being nearly filled with what the microscope proved to be concretions of pus cells intermixed with great quantities of epithelium and blood clots. The prostatic and membranous portions of the urethra were also involved, and the mucous membrane was much thickened and dark in color.

Portions of both kidneys and the bladder, together with several of the tumors found in the abdominal cavity were preserved in Müller's fluid for microscopical examination, which will be published at a later period.

When the long bones are the subjects of fracture, and the injury takes place in the course of a blood vessel lying directly on it, it is not rare to see as a complication of the primary lesion a tearing of the artery, giving rise to deep hemorrhage, which is accompanied by enormous swelling of the parts. Still, it is not common to find that either of the lesions is likely to be necessarily fatal by itself; the practitioner, however, will do well to remember that such a result may be anticipated if the laceration takes place upon a blood vessel, where the coagulation of the blood is not likely to close it up, and where the blood, being allowed to flow and accumulate in a large cavity, the animal may die in a short time from internal hemorrhage. The case which we publish from the record book of Dr. Kemp illustrates this possibility, and will serve to put the veterinarian on his guard as to the fatal prognosis he may be called upon to give in a case of fracture of a bone closely connected with blood vessels of even medium size.

FRACTURE OF THE EXTERNAL ANGLE OF THE ILIUM CAUSING FATAL HEMORRHAGE.

BY THE SAME.

At four o'clock in the afternoon of the 5th inst., a brown gelding, twelve years of age, was brought to the hospital with the following history: Two hours previous, while crossing the river in a ferryboat, he had slipped and fallen on the near side. The harness was removed, and he rose to his feet with difficulty, standing on three legs and manifesting great pain. He was immediately walked up to the hospital, a distance of about two miles. At this time the near hind leg was carried in extreme extension, resembling somewhat the position assumed in dislocation of the patella. The fetlock was flexed and the toe rested on the ground, while the entire limb was lifted up and down incessantly. The body was covered with perspiration, and the countenance wore an anxious expression. The horse was very reluctant to move; but when forced to do so, would bring the near hind leg slightly forward, and bear considerable weight upon it in walking.

The crural region of the left side was surrounded by an enormous swelling, extending from the external angle of the ilium to the patella. Rectal examination revealed nothing but a violent throbbing of the iliac arteries. The distance between the croup and the external angle of the ilium was slightly diminished on the left side. No crepitation could be detected, and treatment was adopted calculated to reduce the swelling prior to making a positive diagnosis as to the location of the fracture. The horse was placed in slings, but soon became so violent that they were removed, and he was allowed to lie down. He sank rapidly during the night, and died before morning.

Upon removal of the skin, the cellular tissue of the entire leg was found to be infiltrated with blood. A large quantity of coagulated blood was found in the areolar tissue of the flank, inguinal region and abdominal cavity. Proceeding upward, it was discovered that he had sustained a fracture of the external angle of the ilium, and a laceration right across the ilio-muscular artery, from which a fatal hemorrhage had resulted.

Looking at the coxa from above, it would appear that the fracture had involved merely the tuberosity of the ilium, its superior face being perfect. Upon examining its inferior face, however, the true extent of the injury was readily seen. A large piece of the iliac surface was included in the fracture, so that the whole resembled an isosceles triangle, the base of which was formed by the tuberosity, while the apex extended to the middle of the inferior face of the ilium. As the ilio-muscular artery passed directly over the apex of the triangle, the lateral borders of which were very sharp, it is readily seen how the laceration occurred.

CEREBRO-SPINAL MENINGITIS.*

BY PROF. A. LARGE, M.D., M.R.C.V.S.

The object of this Appendix is, to give a brief description of several diseases of Horses not mentioned in the body of the work, and inasmuch as they are not alluded to in foreign works on veterinary subjects, they may be looked upon as *indigenous*, or *peculiar* to this country.

In the vast area of the United States, there may be more indigenous diseases than will be considered here, though, as a general rule, the maladies peculiar to any *one country* are few in number; but the absence of the statistics of diseases and their nature, owing to the *very small number of educated veterinarians*, renders it difficult to arrive at definite conclusions. It is to be regretted that we are not better acquainted with the diseases to which the horses of different sections are liable; these, if carefully noted, would enable us to arrive at some important pathological conclusions. This end, however, cannot be obtained until a sufficient number of *qualified* practitioners are scattered from one end of the country to the other; "a consummation devoutly to be wished."

The first disease in regard to importance, on account of its fatality and the number of its victims, is one that, at the present

*Reprint from Stonehenge on the Horse.

time, is creating considerable excitement among stock owners in different parts, viz., the States of New York, New Jersey and Pennsylvania, from whence we receive the most frequent accounts of it. It is not new; it appeared on Long Island eighteen or twenty years ago, and assumed the form of an epidemic; since that time there have been occasional outbreaks in different parts.

We have had opportunities of seeing a number of cases, not only in the epidemic form, but also some in the sporadic; the latter a rare one, usually occurring in cities, while the epidemic form is usually found in the agricultural or country districts; this sometimes also occurring in cities, as in Brooklyn, August, 1868.

Although this disease is not a new one, we believe its nature to have been misunderstood; in the different works on veterinary literature it is not mentioned; and those persons that have witnessed it, have called it by different names according to their fancy, or on account of some special symptom. Thus, some have termed it staggers, others putrid fever, others paralysis, paralysis of the throat, etc. While some few, on account of the difficulty in swallowing, have termed it diphtheria, a disease which, if it existed in the horse, could not be diagnosed with any degree of accuracy during life; as an examination of the fauces, which is necessary for diagnosis, cannot easily, if at all, be made. We have been for some years a disbeliever in the prevailing opinions with regard to this pathological condition, on account of the symptoms exhibited, and the post mortem appearances. We considered it (when dealing with sporadic cases) as a grave affection of the nerve-centres. This opinion was corroborated during the investigation of the disease in an epidemic form on several occasions. The symptoms then exhibited in the different cases affected, and the post mortem appearances, sustained our diagnosis and previous ideas of the disease, and in our opinion (in which we are happy to say we were sustained by a number of medical gentlemen) definitely established its pathology, which is

“CEREBRO-SPINAL MENINGITIS,” (epidemic).

The same disease that has prevailed, and is prevailing in the human race, and sometimes known as spotted fever.

We will endeavor to give a brief outline of the symptoms as they occur in succession, causes as far as known, post mortem appearances, etc.

Animals, being deprived of the power of speech, cannot communicate to us their sensations, as pain in the head, spine, etc., which we know to be prodromes of diseases of the nervous centres; and pain is not always produced by pressure on the vertebræ; consequently, the disease usually has made considerable progress, and the products of the inflammation of the membranes of the spinal cord, or the extension perhaps of the inflammation to the cord itself (myelitis) of some portion of the spinal tract, causing loss of power of the muscles supplied by the nerves of the part, is the first intimation that we have of its existence.

The symptoms by which we recognize the disease appear suddenly, and they denote that some portion of the spinal tract is first affected, and is more marked throughout the career of the disease than the inflammation within the cranium as a rule, as the disease appears to affect first the membranes of one part of the cord, extend to the remainder, and involve the head in its course, but at a later stage. The attack may begin in one of two ways, though their terminating stages in fatal cases are similar.

In *one* of the two modes of attack, and the rarest form, the animals appear unsteady in action, and in the course of a few hours are prostrated from an inability to use the posterior extremities, the sphincters are relaxed, the muscles of the anterior parts of the body, neck and head will usually be found in a state of tonic spasm (trismus and opisthotonos, the condition of tetanus or lock-jaw), the pulse will be found quickened but soft, breathing accelerated. The change that occurs between this condition and death is the extension of the paralysis from behind forwards until it becomes apparently complete; a condition of coma or insensibility usually precedes death by several hours.

The *second* of the two modes of attack we wish to call especial attention to, as it is the way the *majority* of cases are first affected, while to an ordinary observer there appears to be little, if anything, amiss with the animal. At *first*, there is an inability to *swallow fluids*: in the course of a few hours to a day, there is a

copious discharge of saliva and mucus from the mouth, the animal may be continually masticating; if the mouth is opened, food will usually be found on the tongue, between the teeth of the upper and lower jaws, and between the teeth and the cheeks; in fact, the power of deglutition or swallowing is now completely lost for solid food as well as for fluids. The respiration in this stage is normal; pulse also, if any change it may be a little soft; bowels usually costive. If the hand is passed into the mouth, over the base of the tongue, the fauces seem relaxed, baggy to the feel. These are the only symptoms exhibited, as a rule, in this stage; though in one case which we had under treatment (May, 1868), active delirium existed, the animal fought and bored his head at the wall of his box similar to an attack of phrenitis. This case recovered, but it was a sporadic case, and they are usually more amenable to treatment than when they are of an epidemic character.

If pressure be made directly over the spine, pain is not usually evinced, and yet when the power of deglutition is *completely lost*, one may safely predict that before long the patient will be prostrated, unable to rise from lost power behind. When this condition or stage is arrived at, the further course of the disease is similar to that described as occurring in the first mode of attack: tonic or tetanic spasms of some muscles, while those behind are paralyzed, delirium more or less marked in the different cases, the paralysis extending forward presently, coma more or less profound supervening, eyes glassy in appearance and pupils somewhat dilated; the patients present no other changes, and death finally ensues.

Thus the cases, though beginning by two modes, have symptoms in common during their career; with, towards the close, loss of power, but not of sensation, tonic spasms, etc., increased respiration, pulse increasing as the cases approach a fatal termination, but remaining soft. We have noticed as a rare symptom, abnormal action of the heart, amounting to palpitation.

Post-mortem:

The "pia mater" exhibits appearances of acute inflammation, and coagulable lymph is usually found in abundance beneath the

arachnoid membrane; the latter membrane has a blanched appearance. The inflammation is more strongly marked at the anterior cervical and lumbar regions of the cord and base of the brain than at other sections; (it is at parts of the body corresponding with these sections that we have the symptoms of paralysis from pressure most strongly marked during life.) The substance of the brain and the sections of the cord where the inflammation seems to be most intense, appear to be softened; it is reasonable to infer from certain symptoms that the inflammation extends to the nerve substance and produces changes in it, but this can only be decided by the microscope. The lung corresponding to the side the animal was lying on at the time of death is generally congested, but this appearance has no particular connection with this individual disease; a coagulum is sometimes found in the right cavities of the heart; this appearance also has no direct pathological connection with this individual disease.

These morbid appearances are all that are discovered, all the organs and viscera, with the exceptions noted, appearing to be normal; perhaps the morbid appearances would not be so marked if an examination was made of a patient dying soon after being attacked, as we have known a case to run its course to a fatal termination in eighteen hours after the first symptom was noticed. This remark will lead us to the consideration of the *duration* of the disease in fatal cases. According to our experience the minimum being eighteen hours, the *average* the latter part of the third or beginning of the fourth day, the maximum about eight days, from the appearance of the first symptoms. These remarks apply to the disease in an epidemic form; in the isolated or sporadic form as we have occasionally in cities, the cases are not as a rule as strongly marked in symptoms (though they may prove equally fatal in character) and are of longer average duration.

Pathological character, or nature. The anatomical characters point to inflammation of the meninges (membrane) of the brain and spinal cord, perhaps the brain and spinal cord being implicated as well. But in view of the disease assuming an endemic or epidemic form, the inflammation must be looked upon as an *effect* of some pre-existing pathological condition of the blood;

what that condition is, of course in our present knowledge it is impossible to say.

But there is one important point to be considered in this connection. In view of the endemic or epidemic character, the question naturally arises: Is this disease contagious or infectious? We do not believe it is either one or the other. When this disease breaks out among animals in a certain location, it may be fatal to many or all; but that is no proof of contagion or infection, for they are all alike exposed to the local existing cause whatever it may be. A healthy animal being placed in an affected district, and allowed to remain, may be affected, similar to a person contracting intermittent fever (fever and ague), but that is no proof of contagion or infection, for the same reason above stated. The only proof we can have, is of an animal affected carrying the disease *from* the locality where it was contracted and communicating it to healthy animals. Can this be done? In answer to this question we will say, that two years ago we had an animal affected with the disease removed to a stable among a number of healthy horses; the disease was fatal to the patient, but was not communicated to any others. We had a second case, placed under the same conditions, resulting the same as far as other horses were concerned, but the patient recovered, as it was seen early in the disease.

The non-communicability of the disease has again been proved by a recent epidemic in Brooklyn.

The Causation. When disease assumes an epidemic or endemic character, there is a special cause in operation, a blood-poison of some kind; but what it is we do not know. There may possibly be co-operating causes, which may assist the special unknown cause in producing the disease; for example: it usually makes its appearance in the spring and early summer months of the year, when the weather is changeable in temperature and frequently wet, like animal poisons generally that require a certain amount of *heat* and *moisture* to render them active in the production of disease, as they are considered by some as totally inert in power when in a quite dry condition, even under an elevated temperature. According to our experience, stable management

has nothing whatever to do in its production, as it attacks those animals that are well cared for as well as those that are not; attacks in the field as well as in the stable. In fact, neither age, sex, condition nor mode of living seem to give exemption from an attack, or to modify the symptoms when it occurs.

Prognosis.—There is no disease of the horse with which we are acquainted so fatal as this one. In the last two epidemics that came under our notice, every animal attacked died; and in the different parts of the country where this disease (though under the different names previously stated) has been described by the newspapers as having occurred during the present year, the mortality they have said has been very large. In previous outbreaks very few horses recovered. We have succeeded in carrying four through the disease, but these were seen when they could not swallow fluids, but could still swallow food. The prognosis is, therefore, a grave one, and in the large majority of cases must be unfavorable.

Treatment. In a disease so rapid in its course and fatal in its character, it is extremely difficult to say anything satisfactory of the course of treatment to be adopted. There are certain indications to be fulfilled: the question is, "How is it best to carry them out? We must take into consideration the nature of the disease, the probable progress it has made, and the mischief done before the case is seen; it is not often that the veterinarian is called in at the onset, but generally when he examines his cases, he will find from the paralysis of some parts, as the throat or posterior extremities, that the inflammation has existed long enough for its products to be exuded from the vessels. We must also take into consideration that in the cases where the power of deglutition of both fluids and solids is lost, we are deprived of one method of administering medicine, viz., by the mouth, unless a stomach-pump should be within reach, whereby we might pump or pour the medicines through its tube safely into the stomach. We must give a caution with regard to administering draughts or medicine in a fluid form—it is often a risky experiment for an inexperienced person, even on an animal whose powers of deglutition are perfect, but in the cases now under consideration, where the powers are but imperfect, if not altogether lost, it is fraught with great danger. The

fluid may perhaps pass down the trachea to the bronchial tubes and produce death by suffocation. If *fluid* medicine is administered, it must be of a clear nature and but little in quantity. There are other methods of administering medicines, such as by the rectum, or the hypodermic method; but when suddenly called away from home, we have not always these facilities for administration.

The next questions are, "What medicines should be administered? What is the course of treatment to be adopted! As we have inflammation of a very important and grave character to deal with, all our treatment must be brought to bear upon it, to subdue it, if possible, or endeavor if we can to diminish its intensity, to limit it to a part of the spinal tract, and prevent it spreading to others. If when the surgeon is called, he finds the patients down, prostrated, or that they have lost for some little time previously all power of deglutition, he will find it almost useless to attempt treatment; but should the animal not be prostrated, and should it be able to swallow food, or a bolus, though it cannot swallow water, the prognosis is more favorable, and treatment should be undertaken and persevered in while there is a reasonable hope of recovery.

Blood-letting is a powerful antiphlogistic agent, but in the large majority of these cases there are no indications by the pulse for its use; it must therefore be dispensed with. We must resort to cathartics, such as aloes, as the depletive agent, and besides make use of those sedatives whose action is directed principally to the nervous system and that exercise an influence on the capillary vessels and limit the supply of blood going through them to a part. The agents we have used for this purpose are tinct. of aconite, and ext. of belladonna, alternately; commencing their administration soon after giving the cathartic, not waiting for its action, as time is very precious; in fact, we frequently combine the sedative with the cathartic, as follows: from ʒi. to ii. of ext. of belladonna with a full dose of aloes, for an adult horse; then administer tincture of aconite root, f ʒss., in half a tumbler of water every three hours; or alternating every other dose with a medium dose of the extract. This is the course of treatment followed by us for several years, and in the cases where recovery took

place. Local applications such as stimulants or counter irritants (blisters), to produce a revulsive action, should be applied to the spine and throat; these should be repeated from time to time if relief is afforded. Finally, should the case or cases be so protracted that failure of the vital forces (or great exhaustion) is apparent, all agents of a depletive or sedative nature must be abandoned, and stimulants and tonics be administered in their stead.

When the patients respond to the treatment, it will be found that the muscles regain their power in a short time, so that if it is the throat that is affected, in the course of a few days the patient will be able to swallow well, though some time will be required for a complete restoration to health.

Prevention. Can this disease when breaking out in *some* animals in a locality be prevented from attacking the others of the same locality? We think this can be answered satisfactorily; at least it has proved so on more than one occasion. The idea occurred to us while attending an outbreak on Long Island. From the commencement of the epidemic there had been one or two fresh cases occurring every day, and as there were other animals on the same farm, both in stable and field, that as yet appeared well, we thought it advisable to put them under a course of treatment to save them if possible. There were twelve horses and colts still remaining; three of these as an extra precaution we sent some little distance away; of the others, some were kept in the stable where the first case occurred; others were running in a field where two cases had also occurred, but all of the animals whether at home or those sent away, with the exception of an old blind mare that was considered useless, were placed under the same course of treatment with the following result. The old blind mare that received no treatment, died; no other cases have occurred on the farm though fifteen months have elapsed. This result was very encouraging; every animal that was put under treatment escaped an attack, while the *only one not treated* died. Acquainting a professional friend, Prof. Liautard, with the above facts, he soon had an opportunity of testing its merits for himself, and related to us its results. He placed all of the animals exposed to the disease in the outbreak he attended (and there was quite a number) under

the treatment with the view of preventing an attack, and succeeded in every instance except one. This animal was well, or apparently so, when the treatment was commenced, but subsequently died. It was discovered, however, that he was a very bad animal to give medicine to, and as its administration was left to a stable-boy, and as he was obliged to put his hand in the horse's mouth to give it, it is presumed from the fact of finding some of the medicine on the floor of his stall, that he received but little if any of it. Now a few words about the treatment adopted. When the idea suggested itself to us we knew nothing of the *cause* of the disease, and could do nothing in that regard; but knowing the *effects*, i. e., the inflammation, and that it might be lighted up at any time, we directed our treatment to the object of preventing it, if such a thing was possible. With this end in view, we pursued the same plan as with those already attacked, viz., depletion by cathartics, closely following it with *medium* doses of the sedatives before referred to, and with the happy results above stated.

Other measures of treatment, both as regards those attacked, and those under preventive treatment, will have reference to hygiene and diet. Keep the animals in stables or apartments that are clean, airy, but free from draughts. Let them have fresh water by them constantly; even if they cannot swallow much of it it will be grateful to them to wash their mouth, and they may even manage to get a little down. With regard to food; let them have small quantities of nutritious food, of small bulk, nicely prepared, and moderately thick gruel, etc. The surface of the body and extremities should be watched as regards temperature; if cool, then light, warm clothing and bandages to the limbs will, by equalizing the circulation, materially assist the treatment.

In pointing out the nature of, and naming this disease, we were guided by its identity with the cerebro-spinal meningitis or spotted fever of the human subject. The same lesions appear upon post-mortem; the symptoms referable to the nervous system are alike, with this exception, that paralysis is not as frequent in the human as in the equine race; it was only several years after we had written on this disease in the horse that we saw noticed by medical writers on the disease in the human subject the paralysis of the

throat that is one of the most marked symptoms, in the majority of cases, in the horse. No petechia or spots were discovered on the animals, but they are frequently absent from cases in the human subject. Other points of similarity are the short career and fatal character, and being epidemic, or endemic; also, although, we do have some few cases in cities, usually of the sporadic form, it is generally in the rural districts where this disease appears.

There is a disease in India known as "*kumree*" that was very fatal to horses some years ago, the pathology of which was stated to be hemorrhage in the cord or between its membranes, causing paralysis by pressure, and terminating fatally. We mention this thst the two diseases may not be confounded.

The *diagnosis* of cerebro-spinal meningitis is not very difficult if the animal is prostrated, the symptoms being well marked. But it is in the early stage when the throat is *first affected* that we must make the diagnosis if the animal is to have a chance of recovery. For this purpose, we make it a rule to have all the *apparently unaffected* animals frequently tested with a bucket of water to see if they can *drink*. If the amount of water is much diminished in the pail *by swallowing, not spilled over*, well and good. It is necessary for the test that they drink out of a bucket, or small vessel of some kind, where the amount taken can be noted, else a person may be deceived; for an affected animal will persevere in the effort for minutes, and to an ordinary observer seem to drink well, but no water passes down the *æsophagus*. As soon as an animal seems to be affected it must be placed under treatment immediately, and if it is in the country and likely to be epidemic (and it will soon prove itself), the effort to prevent others from being attacked had better be made, for an "ounce of prevention is worth a pound of cure." But in cities it will occasionally be found that out of a stable full of horses a sporadic case will occur, with no tendency to attack the others; it may be that the animal has been to an affected district, and brought the seeds of the disease away with it; but this is merely a matter of supposition, as we have no data to guide us.

AMERICAN VETERINARY COLLEGE.

COMMENCEMENT EXERCISES FOR THE SESSIONS 1882-3.

The winter sessions of the American Veterinary College were brought to a close on the 20th of February, and the commencement exercises took place on the evening of the 28th, at Chickering Hall, before a large audience, and numerous friends of the college. After prayer offered by Rev. G. E. Strobbridge, Mr. Samuel Marsh, President of the Board of Trustees, delivered the diplomas, conferring on the candidates for graduation, the degree of Doctor of Veterinary Surgery. Prof. C. Doremus, of the faculty, delivered the various prizes granted by the Board of Trustees, the Alumni Associations of the College, the New York State Veterinary Society, the two anatomical prizes, and that offered by the faculty to the junior class. Dr. Samuel Johnson, of the graduating class, delivered the valedictory address, one of the best ever delivered before a class of young medical students. The address was delivered by Rev. Henry Ward Beecher, with the eloquence and ability characteristic of that gentleman. It was full of interesting references to the profession, after which the benediction of farewell was given.

The platform was occupied by the Board of Trustees, faculty, members of the profession, and friends of the college.

The music was excellent, and through its melodious airs brought to the crowd assembled in the hall the wishes of hope for success to the new members of the veterinary profession. The graduates were:

Harry Louis Alderman, East Lexington, Mass. William Henry Arrowsmith, Jersey City, N. J. Henry William Bath, Staten Island, N. Y. William C. Bretherton, New York, N. Y. Eugene Burget, New York, N. Y. Lemuel C. Campbell, Sunbury, Pa. William Dana Critcherson, Westerly, R. I. Irving S. Denslow, Rochester, N. Y. Christmas Evans, Racine, Wis. Julian Edward Gardner, Springfield, Mass. Franklin Joseph Hanshaw, Brooklyn, N. Y. Fred. Willis Huntington, Woodford, Me. Joseph R. Hodgson, Brooklyn, N. Y. Samuel K. Johnson,

New York, N. Y. Franklin May Kain, York, Pa. Richard Kay, San Jose, Cal. John Allebaugh Myers, Harrisonburg, Va. Arthur B. Morse, Boston, Mass. William Bertram C. Noyes, Boston, Mass. William Hamilton Pendry, Brooklyn, N. Y. Austin Peters, B. S., Boston, Mass. James F. Ryder, Jamaica, N. Y.

The following gentlemen were successful in the various departments in which they competed:

Messrs. Lytle, Pierce, Gilbert, Allen.

The prizes were awarded as follows:

The first prize, that of the Board of Trustees for the best general examination, consisting of a gold medal, to Dr. F. S. Hanshaw.

The alumni prize to the gentleman who passed the second best examination, consisting of a set of Veterinary works, to Dr. H. L. Alderman.

The prize offered by the New York State Veterinary Society a medal for the best practical examination, was given to Dr. R. Kay.

The anatomical prize to the senior class offered by Prof. A. Liantard, for the best set of anatomical preparations, was granted to Dr. R. Kay.

And the anatomical prize offered by Prof. A. Liantard for the best examination in his department, a silver medal was granted to Mr. W. R. Mitchell.

The Spring session opens on the 1st of March.

SOCIETY MEETINGS.

NEW YORK STATE VETERINARY SOCIETY.

The regular monthly meeting of the New York State Veterinary Society was held at the American Veterinary College, Tuesday evening Feb. 13th, 1883, at 8 o'clock p.m., with the President in the chair. After the calling of the roll and the reading of the minutes of the preceding meeting, Dr. Foote read a paper as follows:

FROM SOUNDNESS TO UNSOUNDNESS.

There is no subject that agitates the mind of the veterinarian more than that of soundness. The variable conception of the term has given rise to great embarrassment to the practitioner, and at times, almost to the ruin of his professional reputation. Decisions in courts have been reversed, and judges of equal rank have argued adversely; sellers and buyers of horses consequently suffering injustices of more or less extent. There is no branch of our practice in which we are so liable to err; hence, how important it is to us that we should have, as nearly as possible, direct rules to guide us, and a thorough understanding of their application, not only to the law, but to the interests of buyer and seller.

A long-standing question, which has never been satisfactorily answered, has been, "Where does Soundness cease and Unsoundness begin?" Nothing is more difficult to answer, and an absolute line of demarcation will probably never be arrived at. All that we can expect is that each case, where the question arises in law, may be decided upon its merits and justly. Almost every writer upon this subject has laid down a different line of division for these terms, resulting in the framing of many different definitions for these terms, the most of which have been comparatively worthless. The terms disease, injury, vice and blemish, have been misconstrued and used synonymously with the term unsoundness, and form has wrongly been considered as a factor in soundness.

In the latest work on this subject, written by Messrs. Goubaux and Banier, I find the definition of unsoundness given as "any apparent trace of depreciation found in or near the skin." This is very faulty, as it not only demands that the horse should be perfect anatomically, but certain unsightly colors, blemishes or variations of form that might depreciate the value of a horse would be considered unsoundness. Without mentioning further the absolutely imperfect definitions, I will give the qualifications for soundness as forwarded by Oliphant, and quoted by Hanover: "a horse is sound when he is free from hereditary disease, is in the possession of his natural and constitutional health, and has as

much bodily perfection as is consistent with his natural formation." It appears to me that this definition requires an animal to be about as perfect anatomically and physiologically as any I can conceive, and as such would leave no doubts in one's mind as to the soundness and unsoundness of an animal, unless he should be the subject of some hidden disease, difficult of diagnosis, and only manifest at times, such as certain brain disorders, dyspepsia, rheumatism, &c., &c. But the law and practice do not recognize any such absolute rule as this, and it would destroy the value of the examination for soundness if they did, as we should meet with very few animals which could come up to such requirements, while there would be many which practically would be as valuable and as servicable.

Fearnley, in his work on soundness, gives the legal interpretation of the term unsoundness as understood by Lord Ellenborough in an English suit, as follows: "If at the time of sale the horse has any *disease* which either actually *does diminish* the natural usefulness of the animal, so as to make him less capable of work of any description, or which in its ordinary progress *will diminish* the natural usefulness of the animal, this is unsoundness; or if the horse has either from *disease* or *accident*, undergone any *alteration of structure* that either actually *does* at the time or in its ordinary effects *will* diminish the natural usefulness of the horse, such a horse is unsound." This definition is undoubtedly correct, as far as it goes, but what are we to do with that vast number of blemishes, if you wish to call them such, which are the results of disease and which do not interfere with the animal's natural usefulness, such as an enlarged limb in a draft horse; a fibrous tumor on the elbow; the result of a shoe-boil; a large splint or an exostosis of the hock. Are such disfigurements to exempt a horse from being considered sound?

My solution of the problem is to divide the subject into three degrees of condition, namely: *soundness*, *practical soundness* and *unsoundness*; the first degree, *soundness* requiring an animal to be free from disease or any effect of disease which alters his natural conformation, action or usefulness. This ruling does not demand that a horse be free from blemishes, nor faulty formations,

such as are hereditary. This distinguishes the question of soundness from external form, a necessary reformation, judging from the decisions rendered by the courts in the past, and the ruling set down by Hanover in his work, entitled "Law of Horses." After considering that overreaching, when caused by improper management, is not an unsoundness, he says on page 88, "but when overreaching or clicking is caused by his body being too short for his legs, or, as some express it, his legs being too long for his body, the danger is much greater than in the former case; for in this latter he is much more liable to tread on the heel of the forefoot, and thus throw himself down, or to tear off the fore foot shoe, in this instance also running a great risk of falling, such clicking stamps a horse as *unsound*." Again, on page 89, referring to *pigeon-toed* horses, he says "should the peculiarity impede them in their labor, they are *unsound*."

These are purely cases of bad external form, and have nothing to do with the animal's state of health, however disastrous they may be to his usefulness, unless these bad conformations are the effects of disease, or have given rise to wounds, in which case they come under the general rule governing soundness. It would be just as reasonable to consider a horse with a large head, heavy neck and shoulders, and comparatively light hind quarters, as unsound, from the fact that such an animal would have the centre of gravity thrown so far forward, as to be liable to stumble, and injure himself or rider.

Again, we must discriminate as to the use a horse is to be put to when we regard his soundness. On page 59, Hanover says of saddle-backed horses, "When the back is so low as to disenable the horse to carry proper weight, though he may be a good harness horse, he is as a saddle-horse, *unsound*," and on the same page, of *roach-backed* horses, he says, "When the back is weakened, or the horse is thereby impeded in his work, he is *unsound*."

When a horse is brought to us for examination for unsoundness, it matters not to us what use he is to be put to. A buyer has his own opinions regarding form, and usually depends upon them. If he makes an error, he should stand the consequences, unless he has received a special warranty from the seller that the horse was suitable for such and such a service.

What shall we include in the intermediate degree, that of *practical soundness*?

All horses that are free from disease and effects of disease or accidents that interfere with their natural usefulness, or in future would be liable to interfere with this usefulness.

Horses could come under this category even though they had bony tumors, or soft tumors in various parts of their external anatomy, provided they were not lame, or liable to be made lame from them, or otherwise were not injured for their work. A horse disfigured by a fibrous tumor, the result of a shoe boil, would, ordinarily, not be inconvenienced by it in his work, and unless there were prospects of further disease in the part, he could be practically sound. He might have splints, wind galls, and even enlarged hocks, but if his action was not interfered with, he would be practically sound, and one might go on to a considerable extent, mentioning slight disfigurements, which would debar a horse from the first degree of soundness, but would not injure his natural usefulness, and hence admit of his being practically sound.

Under the head of *unsoundness* would be included all horses that could not be embraced in either of the preceding classes.

As to the confusion caused by not properly applying the terms vice and unsoundness to their respective definitions: cribbing, weaving, kicking, rearing, shying and running away, are all so many vices, until they can be found arising from some disease, result of a disease, or accident, or until found to give rise to some disease. While the law has been generally so construed, there are many exceptions to the rule, and horsemen and veterinarians have often considered such vices as unsoundness. It has been ruled many times that temporary ailments or injuries do not constitute a breach of warranty, or, in other words, do not constitute an unsoundness. Happily, this ruling is pretty much out of date. One cannot be too careful in wording certificates in such cases, and they should always be made conditional, and a special warranty should be demanded from the seller. I examined a horse for soundness last spring, which was sold as sound with the exception of a cough, claimed to be due to a

slight cold. Without examining into the cause of the cough, I found the animal otherwise unsound, and he was returned. I was informed by the seller that the horse died shortly after, with inflammation of the lungs. I noticed no symptoms of such a serious complaint when I examined him, but if I had found him sound otherwise, and had not examined carefully into the cause of his cough, a disagreeable law-suit might have resulted. Like cases are continually occurring, and demand the utmost care on the part of the veterinarian and the buyer.

Dr. Michener considered it strictly necessary to examine the lungs, and a cough from whatever source, as an unsoundness. In making out a certificate, he recommended to avoid using the expression, "the horse is sound," and to substitute for it, "fail to find any unsoundness," the form that Dr. Liautard has used for some years.

Dr. Crane said: "The veterinarian's ability is the only question in the examination, and if no unsoundness is found, I would advise the use of the term "sound."

Dr. Coates gave as a definition of unsoundness, "any abnormality that interfered with function of a part," and thought it unnecessary to specify an unsoundness excepting verbally to the owner.

Dr. L. MacLean considered a horse with a non-progressive disease, such as a splint and a curb are at times, that do not interfere with his usefulness, as sound.

Dr. Field stated that he had to qualify, and write out in full any blemishes or disfigurements, but he avoided the use of the word unsoundness, as it alarms the buyer, and does an injustice to the seller.

Dr. Liautard said: "We will never agree as to the mode of conducting our examinations for soundness. The intermediate degree only complicates the already intricate subject. We should confine ourselves to the two terms, sound and unsound. You owe your employer all the explanation possible why you discard a horse, but is it always possible? We may need time, and as long as the seller is notified of the judgment, we do not need to hurry in

making our diagnosis. The reason why we have this trouble in our examination for soundness, is because we copy after the English custom. We should have a law that an animal, which is free for a certain time from the date of purchase, from certain specified diseases, is sound. This is the law on the European continent, and covers the ground.

A vote of thanks was extended to Dr. Foote for his paper.

The society then went into executive session.

The Committee on Nominations reported favorably on the name of Dr. D. J. Dixon, and he was elected to membership.

Dr. C. B. Michener was appointed essayist for the annual meeting, which will be held at the American Veterinary College, Tuesday evening, March 13, 1883, at 8 o'clock.

H. T. FOOTE, M.D., V.S.,

Secretary.

MEDICAL ASSOCIATION OF THE AMERICAN VETERINARY COLLEGE.

The College Association of the American Veterinary College is probably but little known to any except the students and professors of that institution. In order that veterinarians generally may gain some idea of the great interest and benefit that the society affords its members, we may be pardoned for asking space in your columns to refer to it.

This Association, which has been in existence since the first session of the college, was organized for the purpose of educating the student how to write on veterinary subjects. That this object is attained, is attested by the excellence of the papers read.

The subjects are assigned at the close of the session to each of those who are to constitute the next year's senior class. The society meets once a week during the entire session, and at each meeting a paper is read by some one, and discussion or debate follows—the writer to defend his opinions advanced as best he can. The president, a member of the Faculty, as a rule devotes a few minutes to remarks on the papers and discussion.

During the present session many interesting and highly creditable papers have been read. They were very generally discussed

by the class, and a great deal of attention and interest manifested.

Among the subjects discussed were contagious pleuro-pneumonia, purpura hæmorrhagica, glanders and farcy, soundness, lameness of various kinds, intestinal disorders, heredity, etc., etc. It would be a matter of surprise to veterinarians were they to attend these meetings and listen to the discussion. The papers are always *well* written, and the remarks that follow do credit to older and more experienced heads. Of a membership of nearly sixty students this session, it was the exception to note many absent. In order to stimulate still further the efforts to make the Association eminently beneficial to the students, the president of the society has offered a silver medal to be given to the writer of the best paper, and who shall have defended his thesis in the best manner.

The subjects for the coming class have all been assigned, and the prospect now is that the coming session will witness even better results than heretofore. The officers elect are: President, Prof. Ch. B. Michener; Vice-President, — Allen; Secretary, — Ross. The treasurer is to be elected from the next year's junior class. With your permission, Mr. Editor, the society will gladly forward to you some of its papers for publication in the REVIEW.

A. E.

MONTREAL VETERINARY ASSOCIATION.

The fortnightly meeting of this Association was held last night in the lecture room of the Veterinary College, Prof. McEachran in the chair. Besides a large number of students and veterinary surgeons, there were present Alderman Fairbairn, Mr. Bickerdyke, Mr. Morgan, Mr. Versailles and others interested in the subject of discussion—inspection of meat and abattoirs. After routine business, Mr. Bell read an exhaustive paper on "Navicular Disease;" Mr. Clement reported the operation of lithotomy on a horse, performed on Monday last, at the College, by the Principal, and exhibited the calculus, weighing three-and-a-half ounces, the horse being now considered out of danger, and will be discharged on Saturday next. M. Daubigny then read a paper,

in French, on "Meat Inspection and Abattoirs," in which he pointed out the defects of the inspection as at present carried on at the abattoirs, urged the necessity of ante-mortem, as well as post-mortem examination by scientific inspectors, who should be microscopists, so as to enable them to detect the presence of parasitic diseases. He noticed at length the thorough system followed by the governments of France and Germany, and in conclusion urged that the inspectors should be well paid, so that they should be independent, and they should have the moral support of the community, besides the proper legal authority, to carry out thorough inspection in the public interest. The paper was a very able and scientific exposition of the subject, which was listened to with marked attention, and called forth eulogistic remarks by Alderman Fairbairn, Mr. Bickerdyke, Mr. Morgan, and others, who urged improvements in the by-laws, giving inspectors power of confiscation, moving cattle markets to the abattoirs, having cattle kept twenty-four hours before being killed.

Dr. McEachran, in a few remarks on the subject, referred to its great importance. One of the most important duties of a College like this was to prepare the students to become thorough sanitarians. Meat inspection was a most important sanitary question. There could be no doubt that scientific inspection was the best mode. Years ago it was laughed at, but to-day it was gaining many supporters. He referred to the fact that pork from the United States was shut out from Germany and France, because those countries knew that there was no inspection in the United States. It remained for Canada, Dr. McEachran said, to open up this field, and thus gain an immense trade with those countries. He said that scientific inspection would be the very backbone of the butchers' trade, who would lose nothing by its adoption. He expressed the opinion that the inspectors should all have the power of confiscation, as without this power their inspection was worthless, and he hoped that the agitation for this improvement would be kept up until it was obtained. He was also of opinion, that slaughtering outside the city limits should be abolished, and that no animal should be slaughtered for human food until it had rested twenty-four hours.

On motion of Ald. Fairbairn, seconded by Dr. Alloway, a vote of thanks was returned to the lecturer for his interesting paper, and the meeting then adjourned.—*Montreal Gazette*.

ONTARIO VETERINARY ASSOCIATION.

The annual meeting of the Ontario Veterinary Association was held in the Ontario Veterinary College, Toronto, on Dec. 21st, 1882.

Members attended from all parts of the Province, also some from the United States.

The President, Mr. Elliot, in his opening address referred to the advancement of the profession in Canada, and cited as proof of the confidence of the public in its members, that not a dollar of the funds of the Association had to be expended in defending members in law courts. He expressed the opinion that a beneficiary society, in connection with the Association, would be appreciated by its members, and closed his remarks with a well-merited eulogium of the Ontario Veterinary College.

The minutes of the last meeting were then read and confirmed, and the Secretary's and Treasurer's reports read and adopted, showing the finances of the Association to be in a healthy state.

Dr. Duncan moved, seconded by Mr. Wilson, supplemented by some very complimentary remarks by Professor Smith, that in view of the great services rendered to the veterinary profession by George Fleming, Esq., F.R.C.V.S., through his valuable contributions to veterinary literature, through his exertions in the passage of the Veterinary Act of 1881—and in other ways—therefore, be it—

Resolved, That the Ontario Veterinary Association, on behalf of colonial practitioners, records its high appreciation of the labors of Mr. Fleming, and requests its Treasurer to forward the sum of twenty-five dollars, as a contribution toward the testimonial about to be presented to that gentleman, in acknowledgment of these services.

The resolution was carried unanimously.

Mr. Cowan moved, seconded by Mr. Coleman, That the

Association having learned with pleasure of the honor that had been conferred on Professor Smith, Principal of the Ontario Veterinary College, by electing him an honorary associate of the Royal College of Veterinary Surgeons, desires to express its appreciation of the honor conferred on the respected Professor of the Ontario College, and through him on the veterinary profession on this continent. Carried.

Dr. Duncan, in addressing the meeting, expressed the hope that increased interest would be taken in the meetings, and that members should regularly read and discuss papers at each meeting.

Messrs. Rogers, Cowan and Sweetapple, agreed to read papers at the next meeting.

Mr. Hinman gave a very interesting account of a peculiar case in his practice.

Attention was called to a person advertising illegally as a veterinary surgeon, and the Secretary was instructed to notify him to discontinue so doing.

Some matters relating to the tariff of fees, were then discussed.

Several new members were duly elected.

The election of office-bearers for the ensuing year then took place, with the following result: Mr. C. Elliott, re-elected President; Mr. Coleman, First Vice-President; Mr. O'Neil, second Vice-President; Mr. Sweetapple, Secretary; Mr. Cowan, Treasurer; Messrs. Hamilton and Hinman, Auditors; Messrs. Hinman, Sanderson, Hamilton, Cæsar, Wilson, Logan, Steele and Grange, Directors. Honorary Director, Professor Smith.

Moved by Mr. Wilson, seconded by Mr. O'Neil, that the sum of twenty-five dollars be appropriated for a medal to be competed for by the students of Ontario Veterinary College, at the spring examination. Carried.

The meeting then adjourned, to meet again in the spring.

CORRESPONDENCE.

ANTI-PYRETIC EFFECT OF QUININE.

DEAR SIR.—While reading the February number of the REVIEW, my attention was called to the article written upon the

“ Anti-pyretic Effect of Quinine, in the Treatment of Pneumonia in the Horse.” While I fully agree with the gentleman, with regard to the value of quinine in the treatment of that disease, I cannot see that he has demonstrated its good effect, in his case, from the fact of his having given it in such extremely small doses. And in conjunction with it, he gave aconite and Dover’s powder, both of which lower internal temperature. When an animal with a high temperature is placed under the influence of the three above-named drugs, I would think it a rare case if the temperature was not affected, and I do not think it would be within any person’s power to say which one of three produced the effect.

Since I have been connected with the hospital department of this institution, I have seen a great number of cases of pneumonia, especially the past few months. In the largest and best kept boarding stable in this city it prevailed as an enzootic, and, all affected, having a temperature above 104° F., were treated wholly upon quinine and ammonia carbonate. There were twenty odd horses sick, and only one of that number died, that being complicated with bronchitis and pleurisy. I have noticed that in uncomplicated cases of pneumonia, quinine very readily lowers the temperature, while if bronchitis is associated with it, the anti-pyretic effect is not as quickly obtained.

Dunn, in his work on Veterinary Therapeutics, gives the dose of quinine for a horse, as from grs. x to grs. xx., that is, a good tonic dose, but I do not think that quinine given in that dose to a horse, will have any effect upon abnormal temperature in the least; men have been known to take grs. xl., at a dose, without bad results following; in the horse I have never seen its toxical effect produced, but I will venture to say, that 3 vi. will not produce it on animal of 1200 lbs. weight. The following are reports of four cases; two of which were patients in the hospital, and two outside.

Case No. 1.—On the 28th of December called to see a large grey gelding, used for hack purposes. This horse had double pneumonia—more extensive in the left lung. Treatment prescribed was ammonia carbonate, and poultice to the sides

of the chest; his temperature was 104° ; pulse 72; respiration 30; directions were given to restrict his diet to oats, carrots, apples, etc. Upon the following day the thermometer registered $105\frac{1}{2}^{\circ}$; pulse same as the day before; respiration less; prescribed 3ii quinine at once, and another 3ii at night, it being about noontime when he received the first. On the 30th his temperature had fallen to $104\frac{1}{2}^{\circ}$; 3ii quinine was then ordered every six hours. On the 31st, his temperature was found to be 103° . On that day the quinine was stopped, the animal doing well otherwise as could be expected. On the 2d of January his temperature had risen to $104\frac{1}{2}^{\circ}$, and quinine was again administered every six hours, until three balls of 3ii each, had been given, when the temperature went down to 101° , and remained, the animal making a good recovery.

Case No. 2.—A sorrel gelding used for road purposes, had pneumonia of the left lung, with a temperature of 105° ; quinine in 3ii doses every twelve hours, and ammonia carbonate. On the third day after the horse was first seen the temperature was lowered to 102° ; quinine was then stopped, the temperature never going up until after the lungs had entirely cleared up, when his temperature rose to 103° , and he was found to have rheumatic synovitis of one front leg.

Case No. 3.—On the 6th of January a large chestnut gelding admitted to the hospital. This horse was used for saddle purposes. Diagnosis, pneumonia of the right lung. Temperature, 105° ; pulse, 60; respiration, 32; treatment, ammonia carbonate, and oil silk jacket to chest. On the evening of his admittance, he was given quinine 3ii, repeated in the night at 11 o'clock, and again on the following morning, when his temperature was down to 104° . He was given two more doses of quinine, at intervals of twelve hours. When his temperature had gone down to 103° , the quinine was stopped. It rose to $103\frac{1}{2}$ the following day after stopping the quinine, but never went higher.

Case No. 4.—On New Year's day I was called to see a saddle horse, the history of the case being as follows: During the first part of the preceding month he was affected with *strangles*, a large swelling of the parotid region. Poultices were ap-

plied for four days, followed by counter irritation, the swelling disappearing in about fifteen days, without any discharge. The animal did not appear to do well, having a cough, and partial loss of appetite. On the day I went and saw him he was found with slight abdominal pains; respiration, 50; pulse, 85; temperature, $105\frac{3}{4}^{\circ}$; anxious expression. A diagnosis was made of lobular pneumonia, prognosis guarded, having fears of a suppurative termination. He was sent to the hospital on that day, and arriving here at two o'clock, was immediately given quinine 3 ss, which lowered his temperature to $104\frac{1}{4}^{\circ}$. That night at 8 o'clock he was given 3 ii quinine, and on the day following his temperature had fallen to 103° ; quinine was stopped then; stimulants from start, and no further trouble during his sickness. I would not have given such a large dose of quinine ordinarily, as this horse did not weigh over 950 lbs., but fearing the formation of pus, I gave the dose both for antipyretic and antiseptic effects.

FRED. SAUNDERS, D.V.S.,

House Surgeon, A. V. H.

EXTRACT FROM THE REPORT OF C. P. LYMAN.

In the Report of the Commissioner of Agriculture for 1881 and 1882, which has just been published by the Department at Washington, appears the final report of Mr. Charles P. Lyman, Veterinary Surgeon, upon the prevalence of contagious pleuropneumonia within the United States, and as affecting the cattle from the United States, as they are landed in Great Britain. After stating various facts, and making some quotations from reports of the various inspectors, who were appointed by the Department in the different States, going to show that the extent of infected territory does not differ materially from that already defined by him, Mr. Lyman goes on to say:—

“ I do not know that I can add much to this report that will increase its value; the facts speak for themselves. Although I think that most decidedly England has never received a case of pleuro-pneumonia from either Boston or Portland, I still think

that their position upon the question of their receipt of our cattle is a perfectly fair one, and leaves no room for complaint. When it is remembered how many thousand pounds sterling have been lost by British cattle-owners, on account of the introduction among their herds of foreign cattle affected with exotic contagious diseases, and, as they say, when one thinks of how little provision we, as a government, have made to prevent the spread of pleuro-pneumonia, it is difficult to see how they can do otherwise. That this disease really has an existence in a certain part of this country, they, through their consuls, are as well aware as we, and no amount of testimony to the contrary by this intelligent farmer, and the other experienced dealer, will have the slightest possible effect upon their action. I thoroughly believe that were we able to show a country entirely free from this disease, the restrictions now imposed upon our cattle landing in Great Britain, would at once be removed, other conditions being the same as now. That is, I am a strong believer in their honesty of purpose in this matter. It is a significant fact that no condemnations have been made since last June, upon cattle coming from Boston or Portland. In regard to ridding ourselves of this present incubus upon what should be a large and profitable export trade, and which now seems threatened with extinction, as well as to prevent for all time the great danger, which I feel to be a real one, of the introduction of this pest to our Western cattle ranges, from whence it could never be dislodged, I can think of but one method which seems to me to offer in any degree a hope of success, and that is for Congress to take the matter in charge in some way that will give the power to, and compel some *one* authority to control the movements of all animals within the diseased districts, and at the same time take such other steps as may be necessary for the killing of all animals diseased or infected. I have no faith in the unanimity of action in the matter by the directly interested States themselves—this, for various reasons, which I have thoroughly learned to appreciate during my recent experience. Neither will action, which only creates a power capable of spasmodic effort, be of avail, else the whole country will but repeat the recent experience of the State of New York—a num-

ber of thousands of dollars spent, and a full supply of pleuro-pneumonia on hand.

Therefore, unless national action can be had, and that in such a way and under such circumstances as to ensure the continuance of proper measures until the desired freedom from the disease is attained, it would be just as well, so far as the effect upon contagious pleuro-pneumonia is concerned, to let the matter alone first as last, and certainly to do so at first would contribute very largely to the comfort of any one who might be appointed executive of any compromising methods of extermination; that is, if it is not a "built" to assume that one can stop doing a thing before he commences it.

NEWS AND SUNDRIES.

A MALIGNANT DISEASE exists among the swine in some parts of the State of Maine. The disease is similar to cholera, the first symptom noticed being coughing.

CURIOUS GROWTH.—We sold to Dr. Leidy, last summer, for his Philadelphia collection, a lower jaw of a boar, whose canines (tusks) had grown uninterruptedly until they had described an entire circle, completely crossing both rami of the jaw, and tearing away, with great disturbance to the alveoles, two of the molars on each side. We are now shipping to Mr. J. Z. Davis, of San Francisco, an immense stuffed hog—nine feet long and four feet high—whose tusks have undergone the same monstrous growth, causing the death of the animal.—*Ward's Natural Science Bulletin*.

APPROPRIATION RECOMMENDED.—The House Committee on Agriculture have agreed to recommend an appropriation of \$30,000 for the purpose of sending representatives to the International Live Stock Exhibition at Hamburg, Germany, next summer.

AMERICAN PORK.—The authorities at Berlin are discussing the propriety of prohibiting the importation of American pork, which is said to be largely infected with trichinæ.—*Medical Record*.

MALIGNANT "PINK-EYE."—"Pink-eye" has broken out in certain localities of England. It is now prevailing to some extent at Newcastle, Gateshead and Durham. The disease is of a malignant type, and fatal cases are proportionately more numerous than when this disease prevailed in the same localities last year. One owner is reported to have lost fourteen horses.—*Turf, Field and Farm*.

HYDROPHOBIC MEAT.—At Reading, Pa., lately, the authorities arrested two country butchers, charged with selling the meat of three hogs which were bitten by mad dogs, and died of rabies. It is alleged that a number of persons became sick after eating the pork. Similar instances have been reported where the flesh of sheep bitten by rabid dogs have brought on severe symptoms. All such animals should be slain and buried or burned.—*Medical and Surgical Reporter*.

TRICHINÆ IN ADIPOSE TISSUE.—It has been generally assumed that trichinæ occur only in the muscular substance, and are not found in the fatty tissue. Chatin's latest investigations have, however, shown that trichinæ occur uniformly in the latter, where the parasites are free or only loosely connected with the neighboring tissue elements. Their nature may readily be mistaken, but is shown by the simultaneous occurrence of encapsuled trichinæ in the muscular tissue. Experiments proved that animals fed with trichinous fat exhibited no indications of trichinosis, while others fed with the flesh from the same infected animal quickly suffered and died with symptoms of intestinal trichinosis; although further observations on the comparative innocuity of the fat must be made before the fact can be regarded as of hygienic importance. The practical value of the discovery at present seems to be that the fat, as well as the flesh, of suspected animals should be examined.—*Gaillard's Journal*.

PREVENTION OF HYDROPHOBIA.—Pasteur claims to have four dogs which cannot be inoculated with rabies by any method. These dogs have been protected by previous mild attacks of rabies, from which they recovered.—*Medical Record*.

SERIOUS LOSS.—Last year the United States exported 108,110 cattle, 2,243 horses, 2,632 mules, 139,676 sheep and 36,368 hogs.

Of the cattle shipped, nearly all went to Great Britain. Had there been no pleuro-pneumonia in the United States, each of these bullocks might probably have been sold for fully \$15 more than was got for him. This would make a difference of \$1,600,000 in favor of American cattle-growers.—*Prairie Farmer*.

A THREE-LEGGED COLT.—In a stall at the iron yard of Mr. Philip Lewinski, at 254 and 256 Nassau Street, Brooklyn, L. I., reclines, or rather stands, for he is on his feet most of the time, a three-legged colt. A freak of nature robbed him in embryo of his right fore-leg, but the absence of this member does not entirely prohibit him from indulging in the playful antics peculiar to youngsters. He was foaled July 24, 1882, at St. Ours, Province of Quebec, Canada, and is a remarkably large colt for his age. The leg has not been amputated, but is the result of malformation. The shoulder blade is perfect, but, as a matter of course, without the limb, the colt is unable to move it. Where the arm of the leg should begin, the bone seems to have curved, making it appear round both to the eye and touch; skin and hair cover it completely, no abrasion or parting being visible. With the exception of the missing leg, the animal is built as he should be; but when standing behind and looking through the legs, the only fore-leg slopes so that the foot comes directly in the centre of the chest. When moving, the fore-leg is thrown forward by a slight upward jump, and the hind-legs are moved as if walking. The colt feeds well and romps about the stable, but unless exhibited, will never pay his way.—*Turf, Field and Farm*.

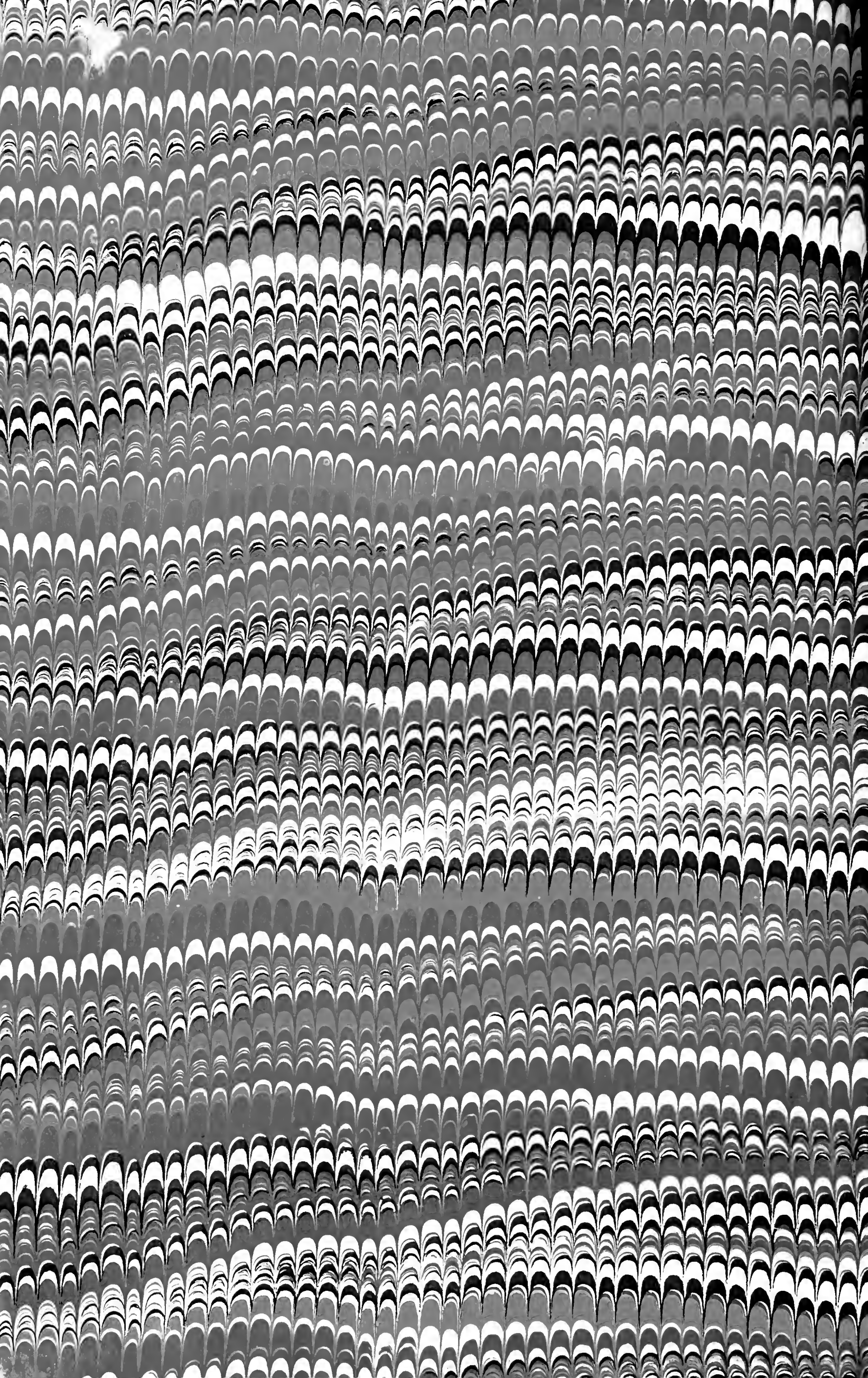
EXCHANGES, ETC., RECEIVED.

FOREIGN.—Revue d'Hygiene, Gazette Medicale, Recueil de Medecine Veterinaire, Veterinarian, Archives Veterinaires, Annales de Bruxelles, Veterinary Journal, Clinica Veterinaria, Revue fur Thierheilkunde und Thierzucht, Journal de Zoötechnie.

HOME.—Medical Record, Medical and Surgical Reporter, Turf, Field and Farm, Spirit of the Times, American Agriculturist, Country Gentlemen, Rural New Yorker, Breeders' Gazette, National Live Stock Journal, Farmers' Review.

COMMUNICATIONS.—Fred. Saunders, H. T. Foote, C. P. Lyman, C. B. Michener, H. F. James, C. H. Peabody, J. Kemp, G. Bailey, N. H. Hoskins, W. Osler, M.D., M. Thomas.

PAMPHLETS.—On Certain Parasites in the Blood of the Frog; An Investigation into the Parasites of the Pork Supply of Montreal; On Canadian Fresh Water Polyzoa.



8-184

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